UNIVERSAL
LIBRARY
OU_170837
UNIVERSAL
LIBRARY

EDUCATIONAL BUILDINGS IN INDIA

Agents for the sale of books published by the Superintendent of Government Printing, India, Calcutta

In England.

CONSTABLE & Co., 10, Orange Street, Leicester Square, W C.

I. S. KING & SONS, 2 & 4, Great Smith Street, Westminster.

H. S KING & Co., 65, Cornhill, and 9, Pall Mall, London

KEGAN PAUL, TRENCH, TRUBNER & Co., 43, Gerrard Street, Soho, London, W.

GRINDLAY & Co, 54, Parliament Street, London, S W.

BERNARD QUARITCH, 11, Grafton Street, New Bond Street, W

T FISHER UNWIN, 1, Adelphi Terrace, London, W.C

W. THACKER & Co, 2, Creed Lane, London, E.C

LUZAC & Co., 46, Great Russell Street, London, W C

DEIGHTON BELL & Co., Cambridge.

B. H. BLACKWELL, 50 & 51, Broad Street, Oxford

On the Continent.

R FRIEDLANDER & SOHN, Berlin, W.N., Carlstrasse, 11.

OTTO HARRASSOWITZ, Leipzig.

KARL HIERSEMANN, Leipzig.

ERNEST LEROUX, 28, Rue Bonaparte, Paris.

MARTINUS NIJHOFF, The Hague, Holland.

In India.

THACKER, SPINK & Co, Calcutta and Simla

NEWMAN & Co, Calcutta

S K LAHIRI & Co, Calcutta

R. CAMBRAY & Co, Calcutta

B. PANERJEE & Co., Calcutta.

The Calcutta School Book and Useful Literature Society, 1, Wellington Square, Calcutta.

MESSRS BUTTERWORTH & Co (India), Limited, Calcutta

HIGGINBOTHAM & Co, Madras.

V KALYANARAMA IYER & Co, Madras

G. A. NATESAN & Co., Madras

S MURTHY & Co., Madras.

THOMPSON & Co, Madras

TEMPLE & Co, Madras.

COMBRIDGE & Co, Madras.

P. R. RAMA IYER & Co, Madras

THACKER & Co., LD, Bombay.

A J COMBRIDGE & Co, Bombay.

D B TARAPOREVALA, SONS & Co., Bombay.

RADHABAI ATMARAM SAGOON, Bombay

SUNDER PANDURANG Bombay

GOPAL NARAYAN & Co, Bombay

RAM CHANDRA GOVIND & SON, Kalbadevi, Bombay.

N B MATHUR, Superintendent, Nazir Kanun Hind Press, Allahabad.

A CHAND & Co, Lahore, Punjab.

RAI SAHIB M GULAB SINGH AND SONS, Mufid-i-Am Press, Lahore and Calcutta.

SUPERINTENDENT, AMERICAN BAPTIST MISSION PRESS, Rangoon

A M. & J. FERGUSON, Ceylon.

S C TALUKDAR, Proprietor, Students and Company, Cooch Behar.

SENATE HOUSE, MADRAS.

Government of India

DEPARTMENT OF EDUCATION

OCCASIONAL REPORTS

No. 6

EDUCATIONAL BUILDINGS IN INDIA

CALCUTTA

SUPERINTENDENT GOVERNMENT PRINTING, INDIA

1911

Contents.

COLLEGES AND UNIVERSITY BUILDINGS.

	Facing page.
Senate House, Madras (illustration only)	
Presidency College, Madras	1
Victoria Hostel, Madras	3
Law College, Madras	4
Christian College, Madras	5
Presentation Convent College, George Town, Madras ...	8
St. Joseph's College, Bangalore	9
Government College, Kumbakonam	10
Students' Hostel, Kumbakonam	11
Dayaram Jethmal Sind College, Karachi	12
Metharam Hostel of the Dayaram Jethmal Sind College, Karachi	14
Gujrat College, Ahmedabad	15
Bahauddin College, Junagadh	16
University Library and Clock Tower, Bombay ...	17
Presidency College, Calcutta	19
Eden Hindu Hostel, Calcutta	21
Calcutta Madrasah	23
Elliot Madrasah Hostel, Calcutta	24
Government College, Patna	25
Krishnagar College	26
Hooghly College, Chinsurah	28

	Facing page.
Muir Central College, Allahabad ..	29
The Macdonell Hindu Boarding House, Allahabad ...	30
Oxford and Cambridge Hostel, Allahabad ...	32
Queen's College, Benares	34
Central Hindu College, Benares	36
Science Laboratory, Muhammadan Anglo-Oriental College, Aligarh	38
Muhammadan Anglo-Oriental College, Aligarh ...	39
Agra College	40
Government College, Lahore ..	41
Boarding House, Government College, Lahore .	41
Islamia College, Lahore	42
Aitchison College, Lahore	43
Senate House, Lahore	45
The Khalsa College, Amritsar	46
Boarding House, Khalsa College, Amritsar ..	47
St Stephen's College, Delhi	49
Government College, Rangoon	51
Boarding House, Rangoon College . .	52
Government College, Dacca	53
Boarding House, Government College, Dacca .	54
Government College, Rajshahi,...	55
Physical Laboratory, Government College, Rajshahi	55

SCHOOLS FOR BOYS.

High Schools.

Hindu High School, Triplicane, Madras	59
Arcot Narainswamy Mudaliar's High School, Bangalore	60
Basel German Mission High School, Calicut ...	61
„ „ „ „ (Primary Dept.) ..	61
Devastanam Hindu High School, Tirupati... ..	63
Elphinstone High School, Bombay	64
Hiranand Academy, Hyderabad (Sind) .. .	65
Ranchhodlal Chotalal High School, Ahmedabad ...	66
Byramjee Jeejeebhoy Parsee Charitable Institute, Bombay	67
The Hare School, Calcutta	69
Northbrook School, Darbhanga	70
Edward Coronation High School, Khurja	71

North Boarding House, Colvin Taluqdars' School, Lucknow	72
Designs for School Buildings in the United Provinces (4)	73
Government Central Model School, Lahore... ...	77
Islamia High School, Rawalpindi	78
Boarding House, Municipal High School, Lyallpur ..	79
Government High School, Thazi	80
Boarding House, High School, Thazi	80
Type plans for Hostels, Eastern Bengal and Assam .	81
Government High School Hoshangabad	82
„ „ „ Amraoti	83
Anglo-Vernacular School, Akola .	85
Anglo-Urdu School, Akola	86

Middle Schools

	Facing page
Hindu Lower Secondary School, Sivakuntam	87
Kastura Kumari Middle English School, Rohini	88
Middle School, Haidarganj, Fyzabad	89
Middle School, Gopa	90
Government Anglo-Vernacular Middle School, Maymyo	91
American Baptist Mission Anglo-Vernacular Middle Boys' School, Thamawaddy	92
Type plan for Middle Vernacular School for 150 boys, Eastern Bengal and Assam	93
Anglo-Vernacular Middle School, Narsinghpur	94

Elementary Schools

Board Muhammadan School, Chakrpalli	95
Rural School at Pedda Tippa Samudram	96
Primary School, Kopalle	97
Primary School, Kesavaram	98
Municipal School Dhulia, Bombay	99
Urdu Lower Primary School for Muhammadan boys and girls, Hook's Lane, Calcutta	100
Bompas Institute—Dumka Municipal Lower Primary School	101
Village School, Gonda District	102
Primary School, Badam	103
U Aluwaka's Monastic School, Sagu	104
Monastic School, Kyaung, Mimbu	105
Rs 500 School at Pwinbyu	106
Type plan of Schools for Burma (3)	107
Primary School, Mortakka	109
Primary School Itarsi	110
Municipal Boys' School, Amraoti	111

SCHOOLS FOR GIRLS.

Government Girls' Lower Secondary School, Ongole	115
Government Girls' Vernacular Lower Secondary School, Villupuram	116
Convent School of the Daughters of the Cross Bandra	117
Banagana Santal Girls' Boarding School	118
Partap Singh's Hindu Girls' School, Moradabad	120
Queen Victoria Girls' School, Agra	121
St Joseph's Burmese Girls' Orphanage, Mandalay (Vernacular Department)	122
Girls' School, Damoh Central Provinces	123

SCHOOLS FOR EUROPEANS.

Cathedral High School for Girls Bombay	127
St Joseph's College, Darjeeling	128
Victoria Boys' School, Kurseong	131
Diocesan Girls' School, Darjeeling	132
Loreto Convent, Asansol	133
Cathedral Orphanage, Lahore	134
Cathedral Girls' High School, Lahore	135
St Joseph's Convent, Girls, Mandalay	136
Convent High School, Rangoon	137

TRAINING COLLEGES AND SCHOOLS.

For Men.

Teachers' College, Sadapet	141
Government Training School, Nellore	142
Type design for a Training School, Madras	142
Training College, Dharwar	143
Normal School, Gorakhpur	145
Boarding House Normal School, Gorakhpur	146
Training College, Allahabad	147
Central Training College, Lahore	148
Normal School, Lahore	150
Normal and Practising School, Toungoo	151
Training School, Silchar	152
Hostel, Silchar Training School	153
Training School, Jorhat	154
Government Training Institution, Jubbulpore	155
English Middle School attached	155
Model Vernacular School, attached	155

For Women

	Facing page
Government Training School for Mistresses, Combatore	156
American Mission Girls' Training and High School, Madura	157
Practising School, Mahalaxmi Female Training College, Ahmedabad	158
Hostel for Female Normal School, Amraoti ...	159

TECHNICAL INSTITUTIONS.

Bihar School of Engineering, Patna	163
Veterinary College, Lahore	164
Government Technical School, Lahore	165
Central Museum, Lahore	166
Victoria Diamond Jubilee Technical Institute, Lahore .	167
Mayo School of Art, Lahore	168
Government School of Engineering, Insein	169
Ahsanulla School of Engineering, Dacca	170

Preface.

The compilation of this volume was arranged by Mr. H. W. Orange, C.I.E., formerly Director General of Education in India. The descriptions of buildings, the illustrations and the plans are the work of various Educational authorities throughout India, while Mr. J. Begg, F.R.I.B.A., has kindly furnished an introductory note, which will, it is hoped, be of use and interest to all concerned with Educational buildings.

Introductory Note.

THE colleges and schools of India constitute a vast series of buildings of widely differing degrees of importance, from the humble tiled and whitewashed primary school, such as that at Itarsi in the Central Provinces, or the "500 rupee school" of bamboo and mats at Pwinbyu in Burma, to the grandiose Muir College at Allahabad, or the magnificent "Elphinstone High School" in Bombay, from the monastic schools of Burma, with their pagoda-like exuberance of piled up roofs, to the Neo-Saracenic senate-houses of Lahore and Madras, and the Neo-Gothic University buildings of Bombay, with their famous clock-tower, one of the first objects to arrest the attention of the visitor approaching the shores of India from the West.

We find them equipped with every style and degree of fitting and furniture, from the homely squatting floor mat to the latest bench and desk of European design.

On the erection and maintenance of these buildings, considerable sums of money have been spent, not only by Government, but also by private philanthropists. For their design the services of officers of the Public Works Department have for the most part been called into requisition. We find, however, the handiwork of others than engineers as well, as when, for example, the master of one of the schools of art appears in the character of designer in certain instances, while in others it is apparent that the painstaking native "draftsman" has supplied such architectural knowledge as was considered requisite. For the Bombay University group of buildings designs were sent out by that pioneer of the English Gothic revival, Sir Gilbert Scott, these being afterwards adapted, doubtless, to suit local conditions of material, labour and climate.

There are many to whom a collection of drawings and descriptions of some selected examples of this series of buildings will be of interest and use. It is, I think, primarily by the promoters of projects for new school and college buildings, without distinction of the profession or branch of the public service to which they may belong, whether they are educationalists, engineers, architects, civilians, or simple citizens, that it will be found most helpful. By shewing at a glance what has been done before it will enable them to find examples of buildings round which their own ideas and requirements may be readily concreted.

But to these it may not be out of place to offer a word of caution, after the manner of the manuals of popular medicine, which are wont to conclude accounts of the treatment for certain ailments with the advice,—"Consult the Physician." The advice is pertinent to all those whose trouble is the contemplated promotion of any building scheme. The best of books will carry you to a certain point only. Beyond that point you must not neglect to avail yourself of the most competent professional advice you can obtain. This book is not intended to enable you to sit down and design a school, and to those about to do so (there are certain to be those who will try), I would adapt the advice of a celebrated authority in another sphere of human interest and say "Don't"! Consult the architect at the very beginning before your ideas have hardened: consult him, I am tempted to say, before you have opened this book!

To the professional architect and designer of buildings this work should be of use also. Every new building should be the "last word" in work of its class. It ought to be able to shew some advance on anything of its kind that has been done before. No one can be sure he has made such an advance till he has seen as nearly as possible all that has been done, or has examined just such a comprehensive record as is here presented.

I have been asked to comment upon the work from the point of view of the architect. And here I am arrested at once by realizing that these buildings, though certainly the work

of professional men, and in the majority of cases of men who are no mean exponents of no mean profession, are yet not the work of exponents of my own profession. Severe technical criticism might therefore seem to savour of injustice and pointlessness. If adverse it might spend itself on calling attention to the absence of qualities which the buildings were never intended nor expected to possess. If favourable, it might praise them for qualities equally alien to the intention or sympathy of their designers. Such is the unavoidable, unenviable position of the somewhat recently imported official architect in India who must continually risk a hostile reception to his ideas, in so far as these are, like himself, new and different from the ideas that have prevailed hitherto.

Further, school and college design is a specialism within a specialism. This circumstance finally debars me from approaching the subject from a too severely technical point of view, for as I lay no claim to the inner degree of specialism, it confines me to considerations which, for the architect, are still more or less general.

Let me now touch on a few of the points as to which, I believe, improvements in Indian school and college planning generally might take place. What first strikes an architect on looking at the plans illustrated is the comparative absence of any indication of the seating accommodation in the class-rooms. This is not merely a defect of the plans as here presented, but is characteristic of the prevailing method of design in the country. The numbers for which the accommodation is intended are no doubt usually determined from the first. From these it is customary to arrive at the appropriate floor-areas by the simple process of multiplying a certain prescribed unit of surface by the number of scholars. But nothing could be more misleading than this perfunctory method. Two rooms of precisely similar area, but of different proportions of length to breadth, may prove to be of considerably different capacities when it comes to the question of arranging the scholars in them in classes. The only way to be sure of what we are doing, when fixing the dimensions of a class-room, is to plot all the furniture of the room to scale on the plan. In fact to determine the exact dimensions and disposition of the furniture is the first task of the school designer before the design of the building itself is even begun. Exact information should be obtained from the educational authorities concerned as to how the various classes are to be seated—whether on long benches, with or without desks, or on simple mats on the floor, whether they are to be placed according to the simple or dual desk system, whether in a flat-floored room or on graded tiers as in lecture-rooms. These are not matters which should on any account be left to be settled afterwards, unless they are taken at the initial stage the all-important considerations of convenience and economy cannot be given full effect to. Otherwise a room may turn out to be, for instance, too wide for a certain number of scholars, or too long for a certain number of rows, yet just too short or too narrow for one more, and so space may be wasted. Or it may be found impossible to get in the full number of scholars without unduly narrowing the gangways or the teacher's space, or leaving too little space along by the wall.

A frequent defect in school plans in India is that the means of lighting and of access to the class-rooms are seldom considered with relation to the exact disposition of the class. I need hardly point out that the lighting in all class-rooms should be from the left side,* and that access doors should give into the free space in front of the class where the teacher sits, and not directly on to the rows of benches or desks. Yet one can hardly turn over any of these pages without coming across instance after instance of right-hand lighting and wrong

* I have had recently to deal with the case of a school in which some of the class rooms were purposely designed to be lighted from the right-hand side. It was explained that these rooms were intended for the teaching of Persian. The designer had fallen into a fairly natural error in supposing that the direction of the light should be inverted where a right-to-left language was to be written. The reason for the adoption of a left-hand light, however, is not that we write from left to right, but that we hold the pen with our right hand, and a light coming from the same side as that of the pen-hand would throw the shadow of that hand across the page. A left-handed man would always prefer a right-hand light, whether he wrote Persian or English. Take the case of a drawing office. Though this is usually lighted from in front, for the sake of economy of floor space, yet no draughtsman would choose other than a left-hand light, if he were offered the choice except he were left-handed when he would choose a right-hand light. Yet the draughtsman draws his lines in all directions right-to-left as well as left-to-right.

access One finds also, in districts where fireplaces are necessary, that these are frequently placed so as to ensure the roasting of certain of the scholars or else of the teacher.

It may be useful if I here give a few notes of the dimensions which I have found by experience to be suitable for the spacing of desks and benches, premising that the proper sitting-space for each student is a matter liable to vary with climatic conditions, age of students, subjects taught, etc., and that it is impossible for this to be fixed without close consultation with the teaching authorities In the case of long desks a space of 18″ per scholar, with gangways of 18″ along the walls, may be regarded as a minimum Sufficient space must be allowed for the teacher to pass behind each row of scholars, and therefore a distance of 3′ to 3′ 6″ from centre to centre of rows will be necessary In the case of dual desks these are usually 3′ 4″ long (*i e*, a space of 20″ for each scholar), with gangways 16″ wide between desks, and rather more along the walls Space in this case need not be allowed for the teacher to pass along behind each desk (except behind those in the back row), as he can reach each scholar by the side and intermediate gangways The front-to-back measurement may therefore be 2′ to 2′ 4″

Generally, including the free space, gangways, etc., the total floor space of class-rooms, according to the above systems of seating, will be found to work out at between 12 and 16 square feet per scholar, though the rules in certain of the Indian Provinces permit as low a minimum as 6 square feet per scholar

It would be well if more attention were paid to the design of the graded banks for seats in lecture-rooms and halls It is customary to leave consideration of these also till the design of the building—and even the building itself is complete As a result, one finds that a haphazard arrangement is frequently resorted to There is either undue interference with the doors and windows of the room, or awkward and even dangerous flights of steps are found, or else the rise of the grades is not sufficiently high especially towards the back

In the ideally designed lecture-hall bank the front row will be placed at such a height above the floor, and in such a position that a line from the eye of a scholar seated at the remote end of the row will strike the centre point of the lecture-table top at an angle of not less than 12°; the height of the next or any row may be found by drawing a line from the centre point of the table top at such an angle as to pass over the head of a sitter in the row immediately in front This will give the eye and ear level of the row under consideration, the floor level being adjusted accordingly Thus it will be found that the floor level under each row, that is each step in the bank, will rise above the step immediately in front at a ratio which steadily increases towards the back of the room, and that the general line of the bank on a vertical section will assume the form of a curve, which has been called the "isacoustic curve" In practice it will be found that an increase in the height of the "risers" of the rows of $1\frac{1}{2}$″ or so as the rows recede from the lecture table will give a good result and will enable the occupants of each row to hear and see equally—except for their varying distances from the lecturer

Of course it is not always necessary that all the students should look down on the table top In an arts class, for instance, it is sufficient if all can have an uninterrupted view of the lecturer's face Though the former arrangement is the best—even from the point of view of hearing alone—it is frequently desirable to restrict the rise of the bank Therefore where a view of the table top is not a *sine quâ non*, the front row of seats may be placed on the floor of the room itself, and the respective levels of the other rows found by a method similar to that just described, using, instead of the centre point of the table top, a point a few inches below the face of a standing lecturer as the point from which to draw the rays that give the eye and ear levels of the rows In this case the bank will be a very much lower one, and the "isacoustic curve" will be flatter by reason of the ratio of increase in the heights of the "risers" of the receding steps being less Or again the rise of the bank may be still

It is not my intention to pursue this line of criticism into all the various details of school planning and construction The above remarks are offered rather to suggest that a similar method of thorough attention to detail, having regard to the uses for which the various parts of the building are intended, might well be expected to lead to tangible improvements on what has hitherto been the practice Is it a laboratory which we have to consider? Then our first step should be to arrive at the exact design and dimensions of the fittings, benches, fuming cup-boards, etc , and to plot them to scale on the plan (tentatively at first) in order to ascertain that the room yields the accommodation which we desire—neither more nor less—and that all the students have adequate light Is it a library? We must do the same here also, or we shall not be able to study the effect of the room when occupied, nor to calculate the number of volumes it is capable of containing The same principle applies to museums lavatories, cloak-rooms and even store rooms, just as it does to rooms for general and special teaching Convenience and suitability to the purpose intended go hand in hand in this matter with the all-important consideration of economy, for it is a truism that expenditure of thought and labour on the design at the initial stages of the project will save ten to a hundredfold of expenditure in money for the construction It is, I repeat, not merely the comparative absence of detail on most of the plans here illustrated that has suggested this point and has induced me, so tediously, perhaps, to elaborate it Doubtless these plans have in certain instances been simplified for the purposes of clear reproduction But I know from experience of Indian planning, and from handling the working drawings of hundreds of projects, that such details are not customarily given sufficient study at the proper stage of the work There is too much of a tendency to consider that a room is just a room, whatever its purpose There is, further too much of a tendency to regard a building as a mere congeries of rooms and not as an articulate whole –an organism This, doubtless, gives to Indian buildings a certain quality of adaptability—up to a point It may sometimes be expedient to erect a building that will serve for a bungalow, an office or a school But it cannot be pretended that a good bungalow will make a good school or office, or that a good school will adapt itself, without radical alteration, into a good office or bungalow At best we might say that our adaptable building will serve as bungalow office or school pretty equally indifferently, that it will in short, make an equally bad shot at any of the three'

It is largely to this that Indian plans owe that want of interest which, as they appear to the architect, they so frequently shew They have too often the obliging yet slovenly look of the jobbing jack-of-all-trades who is equally ready to paper the drawing room, build the garden wall, or make a toy cart for the children' There are few of the plans in this book which as the architect would say, "read well" There are few with that decided and purposeful look which should at a glance declare the *métier* of every well-designed plan, and when present may be generally taken as a sure index of the high grade of convenience attained In a lesser degree the same is noticeable of the outward appearance of many of the buildings themselves Not in every case could the beholder be sure he were viewing a school or a structure for some other purpose It is, of course, not always possible to make a work of architecture declare its *métier*, nor need the absence of such a declaration always be regarded as an indication of unsuitability But as in the plan so in the outward appearance An appropriate and purposeful look may be taken as in some measure a test of the existence of solid qualities of suitability and convenience The appearance can hardly be produced in the absence of the reality

I think that our more ambitious school buildings are usually of somewhat too ornate and grandiose a character in design A hospital has been described by a well-known expert as a "health-factory" Similarly a school should be regarded as a factory—a machine, I might say—for production of certain definite results It is hard to see how the multiplicity of domes, minarets, cusped and fretted arcades and other expensive features with which the bristling exteriors of many of our scholastic buildings are covered, can conduce to further the

great cause of education. A lesser degree of ornamentation would surely satisfy the "man in the street," and a lesser regard for the man in the street would satisfy both educationalist and architect. Enter one of these elaborate schools. You will too often find the interior bald and unattractive to a degree. Then beauty is apt to be skin-deep only. I would have more attention paid to the production of good-looking interiors, and less to that of imposing exteriors. I would particularly have the class-rooms more attractive and better proportioned, and would not exclude from them a certain chastened amount of suitable decoration, even at the expense of the exterior. The cost would be less, but the educative effect greater.

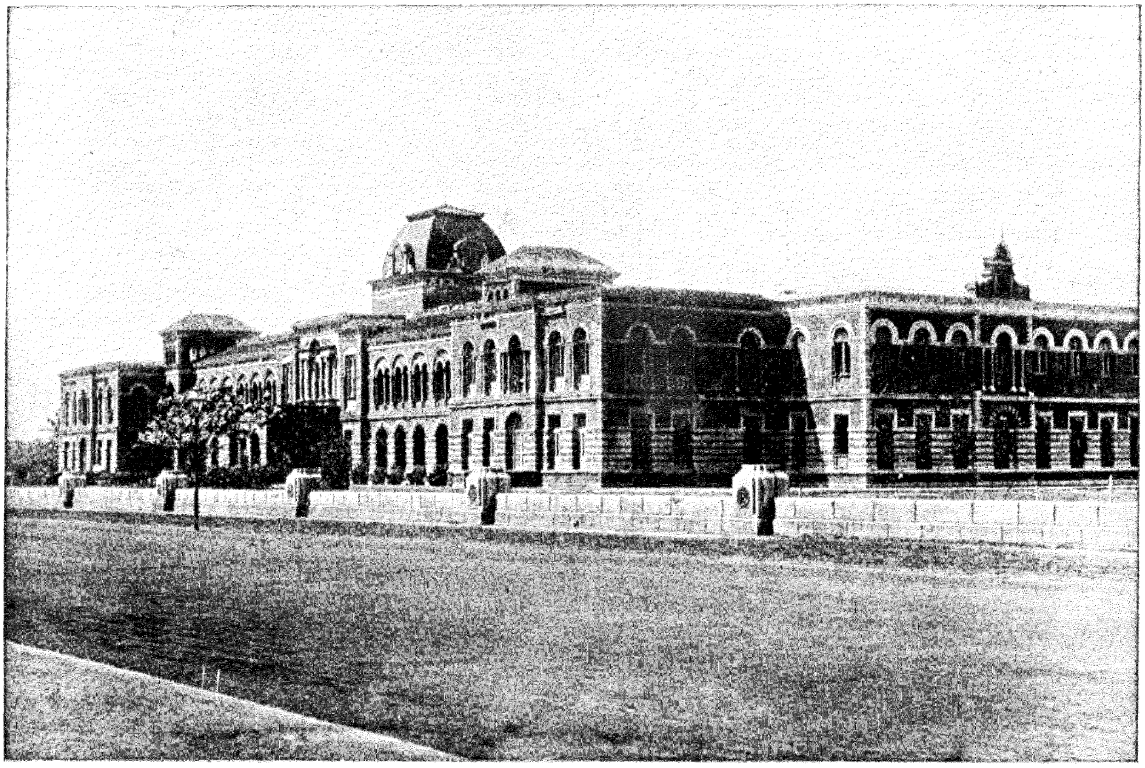
If this is true of a school it is not less so of a college. Here the students are on the threshold of adult life with all its stern and responsible realities. A note of refinement, dignity, seriousness, should be struck. Contrast the impression which many of the colleges in this book make on the mind with that of studious sobriety conveyed by the typical colleges of Oxford and Cambridge, and ask yourself whether the former suggest by comparison concentrated study and the poring over books.

This brings me to speak of "style" in Indian educational buildings. I have no intention to advocate the transplantation to India of the styles of the Oxford and Cambridge colleges, in the usually accepted sense of the term. But their style in the larger sense, that of their proportion, their restraint, their fitness, their *principles* might well be copied. Working on the principles which underlie English collegiate work there are details, features and ornaments ready to our hand in much of the indigenous work of this country. Many of the phases of Indo-Saracenic, for example, are "Gothic" in principle though oriental in detail. On the other hand much of the Gothic work to be seen in India, on scholastic buildings as well as on others, though frequently book-correct in detail, is usually as un-Gothic in principle as it could well be. The choice of style (in the accepted sense) is a matter about which no hard-and-fast rules can be laid down. It can be said only that it should be a spontaneous choice, the outcome of the joint individuality of the project and of the designer. Where it is arbitrary on the part of the latter, or where it is arbitrarily induced, the result is likely to be an artistic failure.

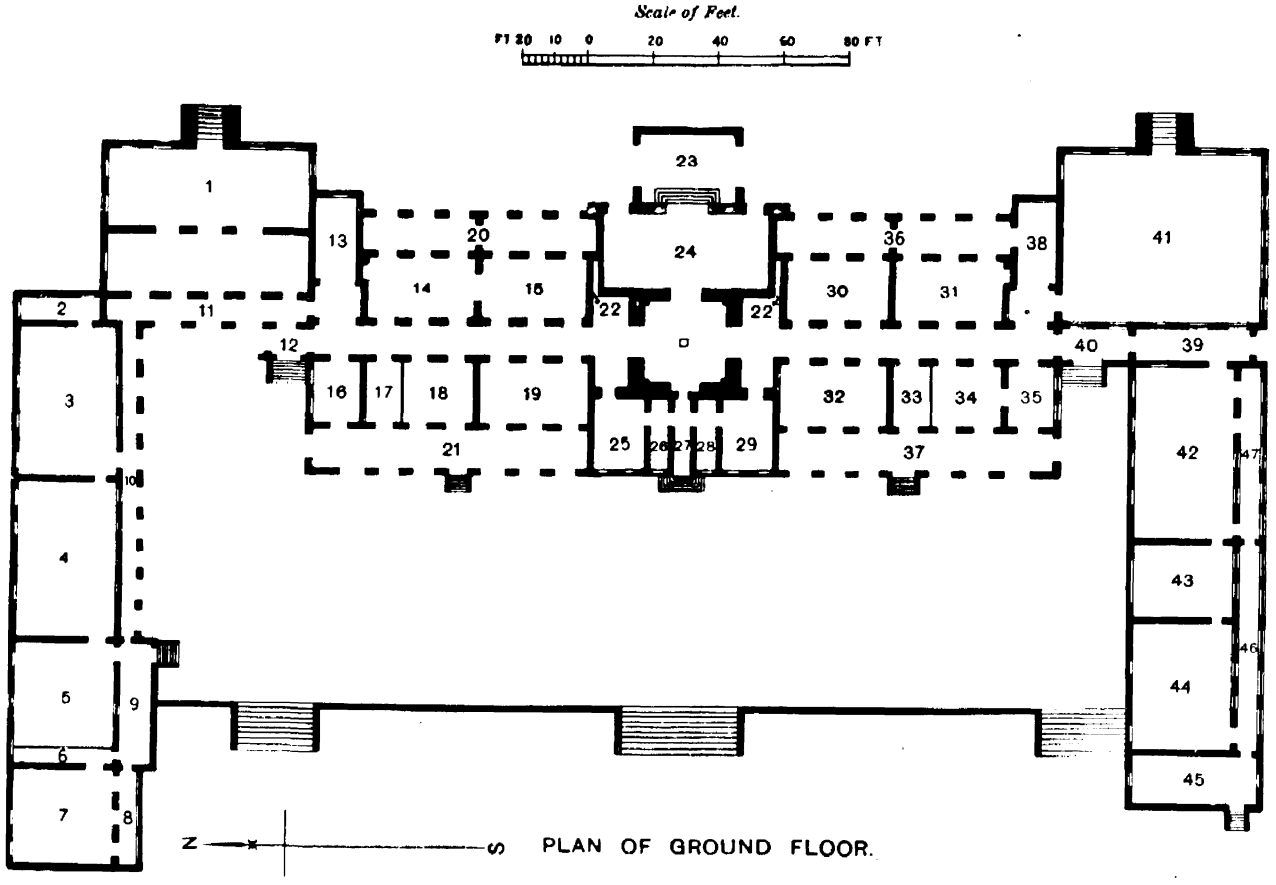
I need offer no apology for keeping my remarks and criticisms to severely general lines. More would be lost than gained were I to single out instances from the present collection for particular comment, either appreciative or fault-finding. I would content myself, in conclusion, with commending this record to the attention of all who have an interest in Indian schools and colleges in the full confidence that it will deepen that interest, and that it will be of much assistance, if properly used, in the preparation of projects for further buildings of a like nature.

J. BEGG, F.R.I.B.A.

COLLEGES AND UNIVERSITY BUILDINGS



PRESIDENCY COLLEGE, MADRAS.



PLAN OF GROUND FLOOR.

The Presidency College, Madras.

The Presidency College provides instruction up to the standards of the First Examination in Arts and B A. and M A. degree examinations of the Madras University in English Language and Literature, certain Indian classical and vernacular languages, chemistry, biology (including botany and zoology), geology, mathematics, physics, history and mental and moral science, and possesses a staff of nine professors, ten assistant professors, six masters of classical and vernacular languages, a gymnastic instructor and three demonstrators. There are ordinarily from 400 to 500 students on its rolls

The college buildings occupy a very open position on the Marina. The main building was opened in 1870 It consisted of an entrance hall with staircase and ranges of class rooms on two floors and a library and college hall (neither of which is now used as originally intended), each extending almost to the height of the two floors Science laboratories and lecture rooms were added after the appointment of a professor of science in 1874 and the accommodation for chemistry was subsequently extended and occupies the whole of the existing south wing In 1886 in order to provide accommodation for the newly-appointed professor of biology, a floor was put into the library, and in 1896, in order to provide an additional large lecture room for English, the college hall was similarly treated. In 1897 the northern wing containing accommodation for the professor of physics and additional rooms for the professor of biology, was completed. In 1908 a further addition in the centre of the façade consisting of large rooms upstairs and down and carriage porches, each with a small room over it, was completed. This has made necessary a rearrangement of the principal staircase which is now in progress.

The building as now completed, therefore consists of the main building which faces the sea with a central block thrown out to the east and two wings extending towards the west It will be seen from the history of the building given above that this form was not the result of a preconceived plan and neither it, nor the aspect of the college, the east, appears particularly adapted to the climatic conditions of Madras But the necessity of aligning the building with the beach road and the position of the land available for extensions made the aspect and plan practically inevitable, and the college is certainly among the coolest and airiest of the public buildings of Madras

The building is of brick, the lower courses being faced with stone. The pillars and pilasters and the window arches are also of stone.

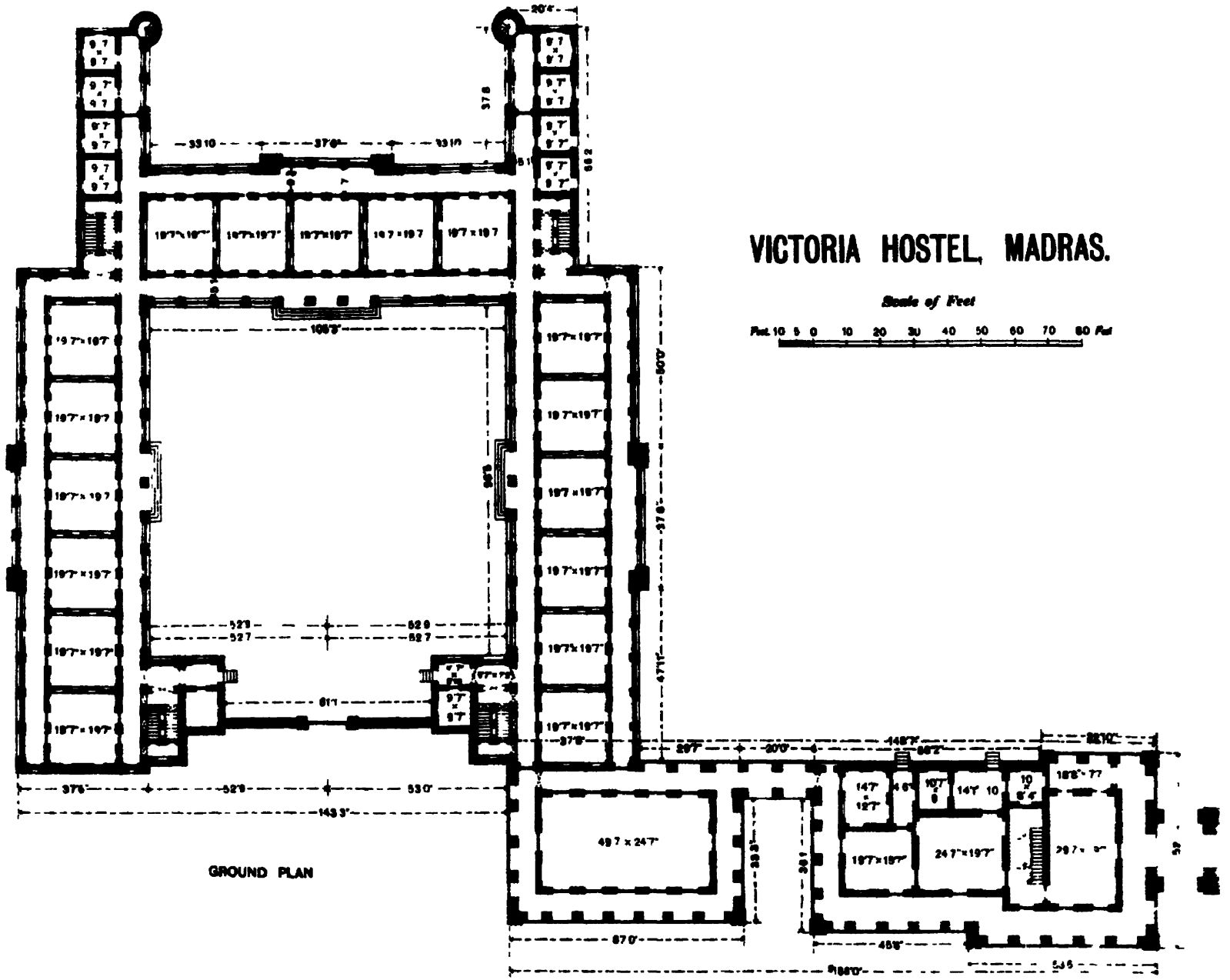
The original main building has a façade of 350 ft. It consists of a main hall with staircase, sixteen class rooms of equal size 20 ft by 33 ft arranged on the two floors on each side of central corridors 10 ft wide Each room is lighted by three windows and has three doors opening on to the corridor and is furnished with rising tiers of benches and narrow desks The corridors have clerestory lights There is a smaller staircase at each end of the corridors, and four small rooms occupying the space at the back of the building corresponding to that taken by these staircases in the front Behind the entrance hall upstairs and down are common rooms for the professors and assistant professors, and one or two of the class rooms have been partitioned off to provide office accommodation and rooms for professors The main building (excluding the hall and library) and the new front block have 11 ft verandahs. The wings have 6 ft verandahs towards the south only The class rooms in the main building are 30 ft by 20 ft, the old library 60 ft by 45 ft, the old college hall 60 ft by 54 ft The old library is now temporarily occupied by the zoology class. The old hall is now the library and the room over it is to be the college hall and will also be used for lecturing The rooms in the wings are 30 ft in depth and vary in length from 55 ft to 18 ft. The total area devoted to each scientific department is, biology 5,520 sq ft, physics 7,050 sq. ft, chemistry 8,820 sq ft

Since the requirements of the new University Regulations will necessitate some rearrangement of the laboratories it does not seem worth while to enter into details of the uses to which the

different rooms are now put. All the science laboratories and lecture rooms are very completely furnished and equipped.

To the south of the college is an oil gas installation and gas is laid on for laboratory requirements. The physics laboratory contains an electrical installation and the rooms are lit from it. The question of providing electric lights and fans for the whole college is under consideration. Water is laid on to the laboratories and drainage is into the municipal system.

The college has two playing fields used for cricket and football and hockey, respectively, five lawn tennis courts, and the usual gymnastic apparatus. There is also ample tiffin room and latrine accommodation for students. There is no boarding accommodation but about a quarter of the students live in the adjoining Victoria student's hostel, the warden of which is a professor of the college.


VICTORIA HOSTEL, MADRAS.
Scale of Feet
Feet 10 5 0 10 20 30 40 50 60 70 80 Feet
GROUND PLAN

The Law College, Madras.

The Law College, Madras, is located in a building specially built for it by Government at a cost of about 4 lakhs It is situated to the west of the new High, Small Cause, and the City Civil Courts on the Esplanade and within the High Court compound. The building, which was designed by Henry Irwin, Esq., C I E, Consulting Architect to the Government of Madras, was completed, and the college transferred to it in the year 1899.

The building is upper storeyed throughout with terraces both outside and inside, around the courtyard in the centre of the building, the courtyard being about 54 ft. in diameter. The rooms have been arranged around this with a view to afford them ample light and ventilation There are two main towers on either side of the carriage entrance, each of which is about 24 ft. in diameter and about 135 ft high These towers are provided with steps reaching to the first floor. There are also two smaller towers constructed at the angles of the building, each of which is about 15 ft 6 in in diameter and about 92 ft in height There are two floors, a ground floor and a first floor Particulars regarding them are noted below.—

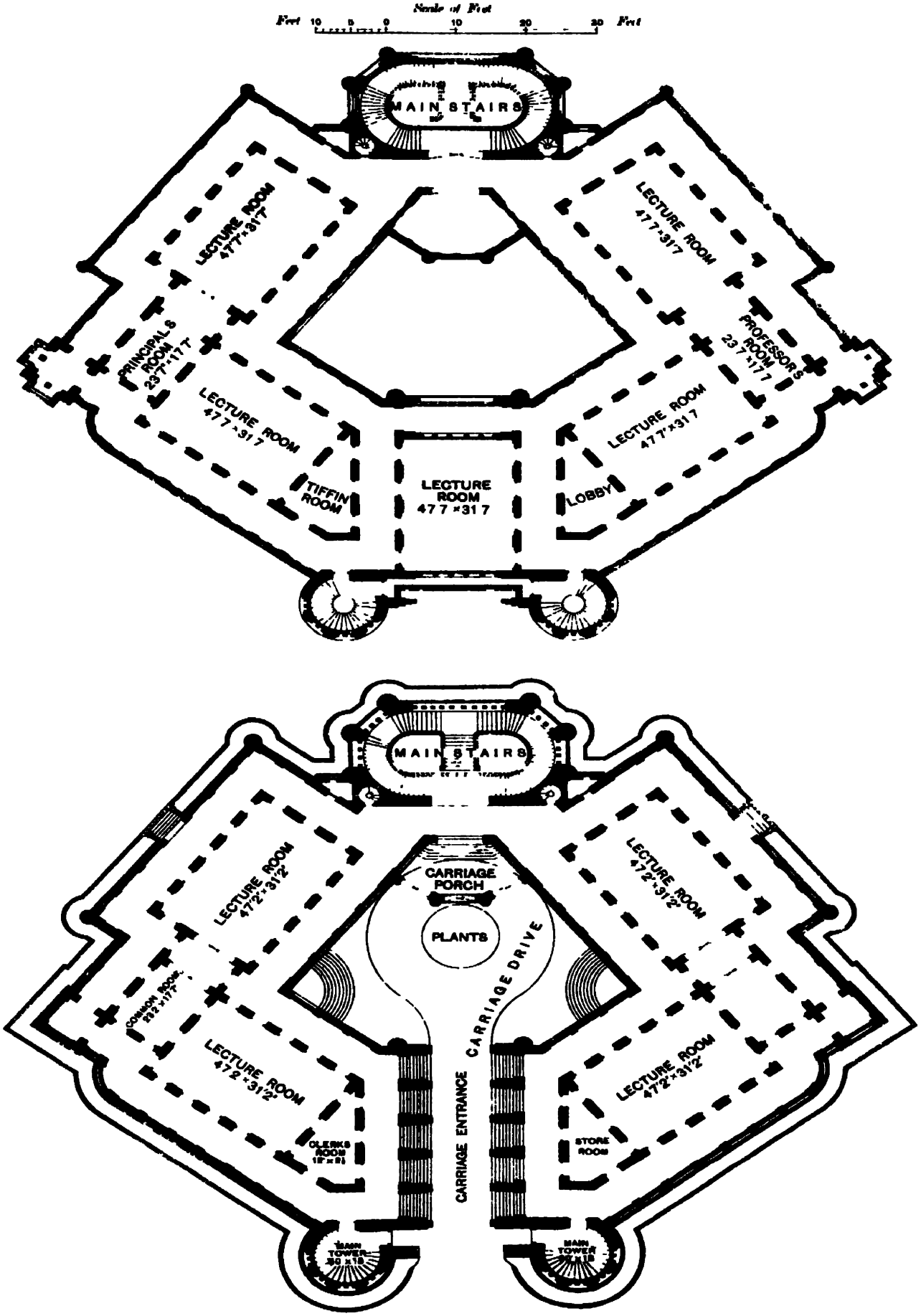
BASEMENT FLOOR.—Four class rooms each 17 ft 2 in. by 31 ft. 2 in.; two common rooms 23 ft. 2 in. by 17 ft. 7 in and 10 ft. 6½ in by 18 ft, two store rooms each 33 ft by 17 ft, two angle towers each 10 ft. 6 in by 10 ft 6 in; two small rooms used for miscellaneous purposes 9 ft. by 5 ft, carriage porch inside the courtyard 28 ft. by 20 ft These are surrounded by verandahs 9 ft 11 in. deep with necessary steps in basement.

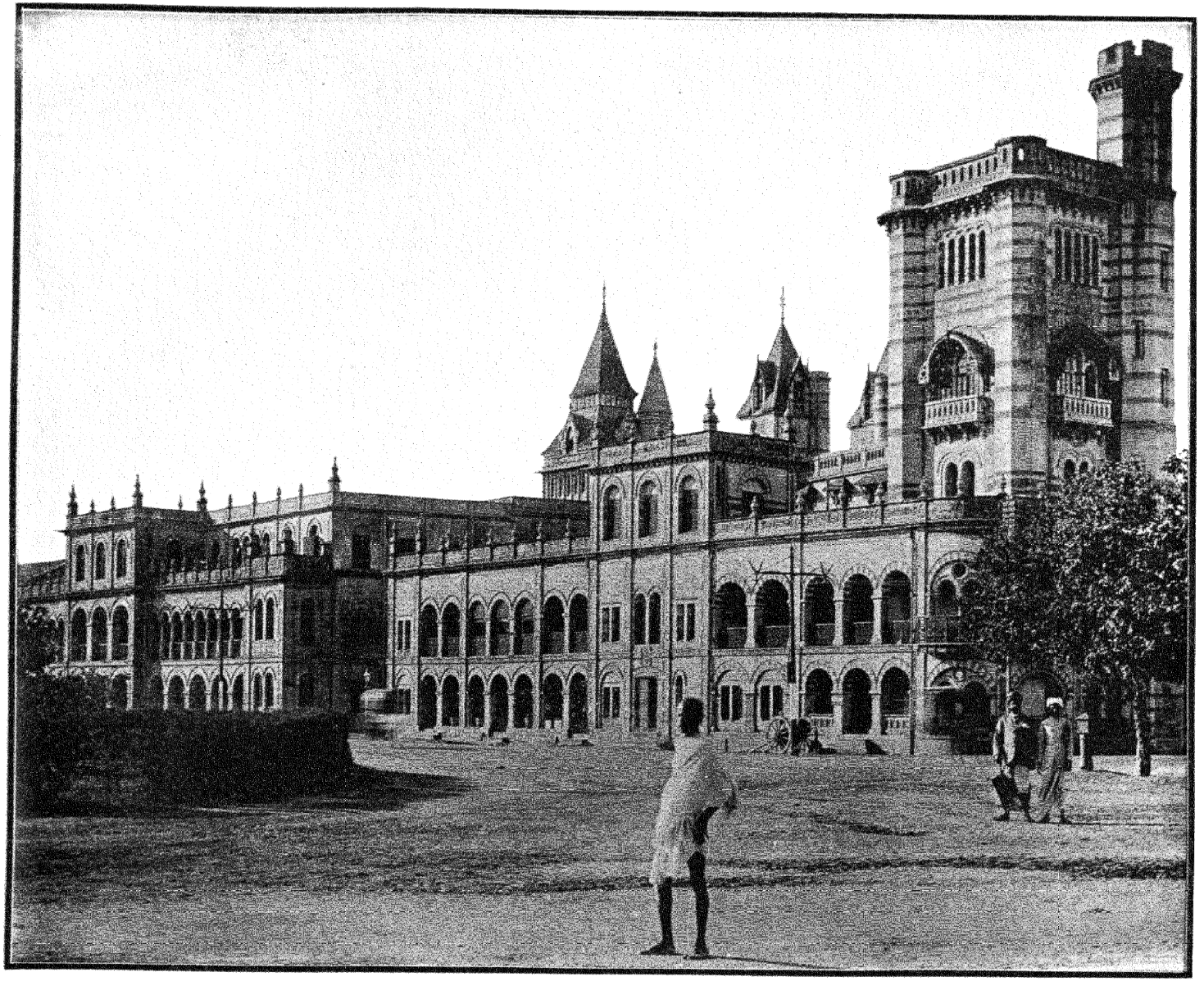
FIRST FLOOR.—Four lecture rooms each 47 ft 7 in. by 31 ft. 7 in.; one library room 19 ft. 5 in by 31 ft 5 in; two principal and professors' retiring rooms each 23 ft 7 in by 17 ft. 7 in and 10 ft 11½ in by 18 ft. 5 in, two small rooms each 9 ft by 5 ft These are surrounded by verandahs 10 ft. 6½ in. deep

The foundation of the building, which is about 10 ft deep, is reported to consist of a bed of stone concrete, 4 ft thick The foundation and basement have been carried up with stock bricks, facing of Clayton's press bricks, occasionally moulded with cut stone dressings The walls for the ground and upper storeys are built entirely of pressed bricks occasionally moulded with cut stone dressings. The brick is red and the interior of the building finished with polished plaster in light tints. The ground floor and plinth protections are paved with Cuddapah slabs on 4 in concrete and pointed with cement The upper floor is paved with compressed tiles 6 in. square and pointed with cement The lower and upper roofs are terraced and supported by steel beams and teak joists The roofs of the main and angle towers are in the form of a dome with copper gilded finials, and the roof of the carriage entrance on the ground floor is groined All the arches of the verandah throughout as well as those at the main entrance have been terraced with fine-dressed stone The parapets on the roof, pillars supporting the arches, bracket stones, vases and mullions, etc., are of stone finely dressed The doors and windows are of well-seasoned Burma teak wood wrought clean and framed in the most approved manner. The tops of the doors have coloured glass with leaden sashes.

Each of the four class rooms and the four lecture rooms has been provided with platforms for the professor and galleries, with benches with back rails, for the students. Each lecture or class room conveniently accommodates about 160 students.

LAW COLLEGE, MADRAS.





CHRISTIAN COLLEGE, MADRAS.

Madras Christian College.

The school from which the Madras Christian College has developed was founded by the General Assembly of the Church of Scotland in 1837, and at first was situated in a rented building in George Town. The nucleus of the present buildings of the Madras Christian College was a house on the Esplanade which was used as the Sailors' Home In September 1846 this building was bought by the Financial Board of the Free Church of Scotland Mission and after being considerably improved it became in December the Free Church Central Institution. In 1871 by an outlay of about Rs. 50,000, towards which Government contributed Rs. 15,000, the buildings were very much improved In 1877 the constitution of the institution was changed The Church Missionary Society and the Wesleyan Missionary Society agreed to assist the Free Church of Scotland in the cost of maintaining the institution which now adopted the name of the Madras Christian College Its management was vested in a college council and a supreme governing body at home, and ten years later it was incorporated under the Indian Companies Act It was soon found to be necessary to enlarge and improve the existing buildings This was done between the years 1883 and 1887 at a cost of Rs 1,36,000 to which Government contributed Rs 41,000. Between 1892 and 1897 further improvements were made, including the building of new class rooms which cost Rs. 48,000 to which Government contributed Rs 12,000 During the same period a building, now known as the Anderson hall, was reconstructed and adapted for college purposes at a cost of Rs 38,000. During the past three years a new building scheme has been undertaken for the purpose mainly of providing the college with more suitable laboratories for science work than it has hitherto possessed. This scheme involves the expenditure of Rs. 2,60,000. Towards this Government has contributed Rs. 68,000—fifty thousand rupees being from the Imperial grant—and the college authorities have raised over Rs 61,000 by subscriptions in India and Rs 1,01,500 by contributions from home

The original building which faces the south has a frontage of 150 ft to the Esplanade on which the High Court now stands It is bounded on the east and west by Angappa Naick Street nd Linghi Chetti Street respectively, and the buildings have gradually been extended along these two streets The site on which when the new buildings are completed the college will stand consists of a parallelogram, the longest sides of which run along Linghi Chetti Street and Angappa Naick Street for a distance of 379 ft When completed the buildings will consist of five blocks built round two open courtyards, one of which faces east and opens on to Angappa Naick Street and the other of which faces west and opens on to Linghi Chetti Street

The courtyards measure respectively 70 ft 6 in by 74 ft. and 81 ft. 6 in by 61 ft 6 in The original building facing the Esplanade or China Bazaar Street is for the most part a two storey building and contains the rooms used for the school department, teachers' rooms and the library The wing running along Angappa Naick Street is a three storey building It contains on the ground floor school rooms, on the first floor school rooms, offices, and the physics class room and on the second floor college class rooms and reading rooms The wing running from Angappa Naick Street to Linghi Chetti Street contains on the ground floor school class rooms and tiffin rooms, on the first floor, the chemical laboratory and the examination hall In the tower which stands in the north-west corner are small class rooms used for the second language classes, and the top room of it is a small library room for the use of M. A. students.

School Department.—There are thirteen school rooms on the ground floor. In these the classes of the primary department and the first three forms of the secondary department of the school are situated and there are also two teachers' rooms The ordinary size of a class room is 22 ft. 11 in. by 26 ft 3 in by 10 ft 9 in., but one is 41 ft. 3 in by 34 ft 9 in by 11 ft. 3 in., while the lower school hall in which the lower school meets for morning prayers every morning is 67 ft. 3 in. by 37 ft 8 in by 11 ft. 2 in

There is a verandah both at the back and the front of the original building. The first floor contains the class rooms of the three upper forms of the school department. There is a large upper school hall above that of the lower school in which the upper school boys meet for prayer every morning, and which, like it, is also used both as a class room and as an examination hall Besides the hall there are four class rooms measuring respectively 31 ft 6 in. by 22 ft 5 in by 14 ft. 3 in , 31 ft. 3 in by 20 ft. by 14 ft. 3 in., 21 ft 9 in. by 19 ft. 5 in by 14 ft. 3 in., and 21 ft 9 in by 19 ft. 5 in by 14 ft. 3 in

Another room measuring 20 ft 7 in. by 23 ft. 10 in. by 11 ft. 3 in. is fitted with a gallery and is used as science lecture room for the school. Next to it is another room measuring 29 ft 4 in. by 26 ft. 8 in by 11 ft. 3 in. which was used as a science laboratory for the school, but its accommodation has been more than doubled by the removal of a partition wall which separated it from the former first college class room which measured 30 ft by 26 ft 2 in by 11 ft 3 in. On the same floor there are rooms for the superintendent, the head master, the superintendent of vernaculars, the pundits, and the upper school teachers and several small rooms in which vernacular classes are held.

The library, which is at present common to school and college, is in the south-west corner It measures 46 ft. 3 in. by 19 ft. 2 in. by 11 ft 3 in. and contains 6,000 volumes. There are verandahs both in the front and at the back.

College Department.—On the first floor there is an English class room with a gallery measuring 34 ft. 5 in by 22 ft. by 11 ft 7 in , offices for the principal, the bursar and clerks and the physics class room, with a gallery, measuring 35 ft. 7 in by 27 ft 2 in by 21 ft., two instrument rooms, and a chemical laboratory measuring 11 ft. 6 in by 34 ft 6 in. by 21 ft When the new buildings are completed the science class room and laboratory will be transferred to them and it is proposed to utilise for the library the space thus set free. On the first floor also is the examination hall measuring 73 ft 2 in. by 52 ft 1 in. by 13 ft. 6 in. Last year a gallery was erected in it which makes it much more useful.

In this connection the Anderson hall may be mentioned. It is a large building facing the Esplanade on the west of Linghi Chetti Street It is fitted with a gallery rising from the floor as well as with a gallery on pillars and can accommodate 800 to 1,000 people. It is used for lectures, prize-givings, gatherings of students as well as for examinations, and part of it is in daily use for the practical geometry classes of the school It contains also several smaller rooms including the room for the meetings of the college council

On the second floor are eight class rooms varying in size, their dimensions being as follows :— (1) 38 ft 8 in. by 25 ft 8 in. by 11 ft 7 in , (2) 23 ft. 9 in. by 11 ft. 5 in. by 12 ft. 3½ in , (3) 33 ft 5 in by 31 ft. 4 in by 13 ft. 2 in , (4) 36 ft 6 in by 28 ft 3 in. by 13 ft. 2 in., (5) 27 ft. 2 in by 18 ft 10 in by 13 ft 3 in ; (6) 26 ft. 9 in by 21 ft. by 13 ft 3 in.; (7) 26 ft. 7 in. by 19 ft 8 in by 13 ft 3 in., (8) 30 ft by 26 ft. 6 in. by 13 ft. 2 in. The last five have a frontage to Angappa Naick Street No (4) is the biology class room at present.

The names given in the plan to the other rooms do not indicate accurately, now that the new class rooms are in use, the particular purposes for which these rooms are used There are in addition a common room and a tiffin room for the professors, a common room for the tutors, a map room, the consulting library and reading room. There is a verandah running round the inside facing the courtyard

The college tower contains a number of small rooms in which some of the vernacular classes are taught, and a small library equipped with desks for the students who are reading for the M. A degree examination. The new buildings which connect at their south-west with the old buildings consist of a block running along Linghi Chetti Street and another block, at right angles to this, running towards Angappa Naick Street With the side of the chemical laboratory they form an open courtyard facing Angappa Naick Street. The new buildings when completed will contain the following rooms

Block facing Langhi Chetti Street already built.

Ground floor.—Intermediate mathematics and physics laboratory 10 ft by 36 ft by 17 ft 6 in. Physics laboratory 50 ft. by 36 ft. by 17 ft. 6 in.

First floor.—Lecture room 40 ft by 36 ft. by 17 ft. 6 in. Intermediate natural science laboratory 50 ft. by 36 ft. by 17 ft. 6 in

Second floor.—Lecture room 40 ft 9 in. by 36 ft. 9 in. by 17 ft 6 in Mathematics lecture room 25 ft. by 23 ft by 17 ft 6 in Advanced physics 25 ft by 13 ft by 17 ft 6 in

Block under construction at right angles to the first

Ground floor Chemical laboratory 50 ft. by 36 ft by 17 ft 6 in Distillation room 13 ft by 10 ft by 17 ft 6 in Balance and store rooms 36 ft by 15 ft by 17 ft. 6 in. Dark room and workshop 36 ft. by 15 ft. by 17 ft 6 in

First floor.—Physics lecture room 36 ft. by 30 ft. by 17 ft. 6 in. Apparatus and professors' room 36 ft. by 30 ft. by 17 ft. 6 in. Advanced Physics laboratory 36 ft. by 30 ft by 17 ft. 6 in.

Second floor.—Store room 36 ft by 30 ft. by 17 ft 6 in Professors' room 24 ft by 12 ft by 17 ft. 6 in Combined lecture room, laboratory and class museum for natural science 83 ft. by 36 ft 9 in. by 17 ft. 6 in

All the buildings are solidly built of brick and chunam, but dressed stone has been largely used in the new buildings owing to the large windows required for the laboratories The wood-work, including the furniture, is of teak. In the new buildings and in most of the recent additions iron girders have been used for the floors and roofs instead of teak beams, and in the new buildings the girders are supported by iron stanchions which rise from the ground right up to the roof of the building and are built into the walls With the exception of the examination hall which is roofed with Bangalore tiles, the college buildings have thick terrace roofs of the kind usual in Madras. Water is laid on to the buildings from the municipal water-supply, and when the new laboratories are completed they will be supplied with electric current from the Madras Electric Supply Company, and with gas from a gas installation on the college premises

As the college is situated in the business part of Madras all extensions are very costly owing to the high price that has to be paid for building sites. For the same reason it is extremely difficult to provide the college with the space required for an athletic ground. The college has been permitted to use part of the High Court compound for a gymnastic ground and tennis courts, and has also the privilege of practising cricket there but the space is inadequate for football or cricket matches. Some years ago the college were permitted by the military authorities to make an athletic ground on the foreshore, where, of recent years, there has been a great accretion of sand A short time ago half of this ground was required by the harbour authorities and now the whole of it has been taken. The college has been granted the use of another piece of sand farther south, and is at present engaged, at great expense, in trying to convert it into an athletic ground, but it will be long before it is really suitable In the circumstances the encouragement of athletics amongst the students and the pupils of the school is attended with serious difficulties.

It should be mentioned that in addition to the general library to which reference has been made there is a large number of books in the consulting library and in the special libraries provided for the students studying different subjects for the B.A and M.A degree examinations Dr. Miller has also presented his valuable library in College House to the college. The college possesses altogether about 14,800 volumes

The college has four hostels—two of which were presented to it by Dr. Miller. These hostels are in the immediate neighbourhood of the college and together have accommodation for about 180 students. The superintendents are professors of the college who live close by in College House—a large building next to the college which is the property of the professors' retiring fund having been presented to it as an endowment by Dr Miller

Presentation Convent College, George Town, Madras.

This building was constructed in the year 1901 at a total cost of Rs 38,979. The building is situated in the grounds of the Presentation Convent, Maclean Street, George Town, Madras. Its situation is well selected, and its surroundings airy and well ventilated, considering that it is located in a town where houses are as a rule cramped, and are not well ventilated and airy

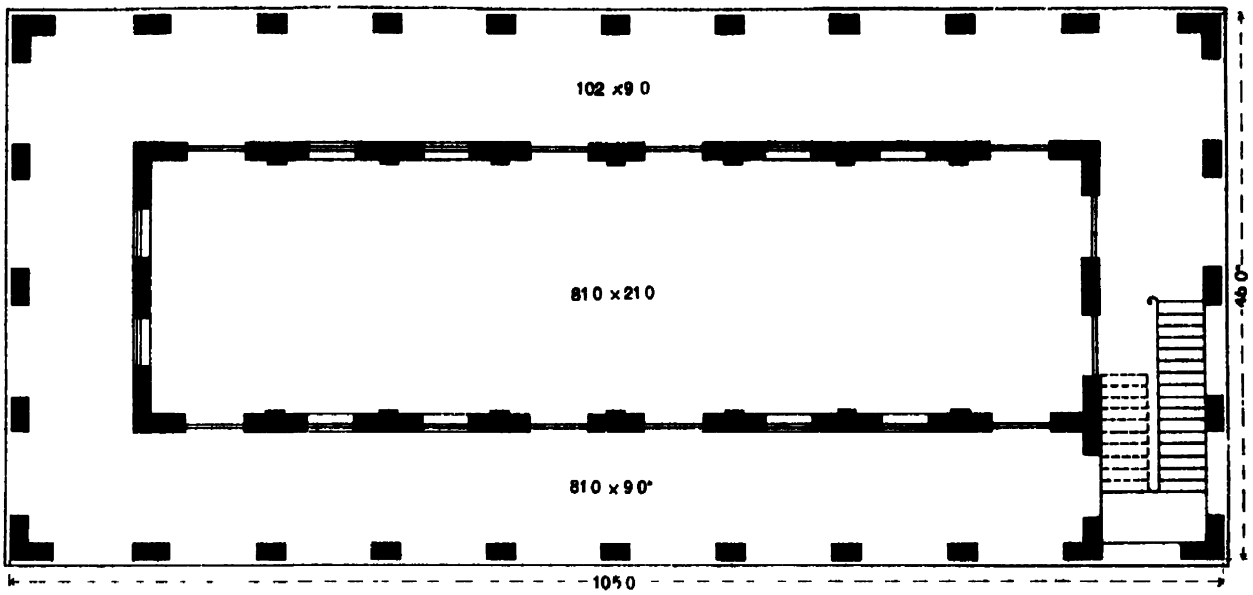
The college building consists of one large block measuring 105 ft by 15 ft external dimensions The ground, first and second floors are identical, consisting each of a large room 81 ft by 21 ft., and each 14 ft high These large rooms, on each floor, are suitably subdivided into class rooms by moveable wooden screens, partly glazed at the top These screens being moveable, their positions are easily adjusted so as to serve the purpose of apportioning the space necessary to accommodate the number or strength in each class They have commodious verandahs 9 ft wide, running round in all the floors, except that side where the staircase comes in

The rooms are well ventilated throughout, with large panelled, venetianed and glazed doors and windows, and the verandahs have arched openings The arched openings on the first and second floors are protected with ornamental parapets The building throughout is built of brick in mortar The roof and floors are terraced, supported on rolled steel beams, with teakwood joists. The walls are finished with finely polished plaster internally and pointed brick-work externally The staircase is of granite with suitable teakwood hand railings

PRESENTATION CONVENT COLLEGE,
GEORGE TOWN, MADRAS.

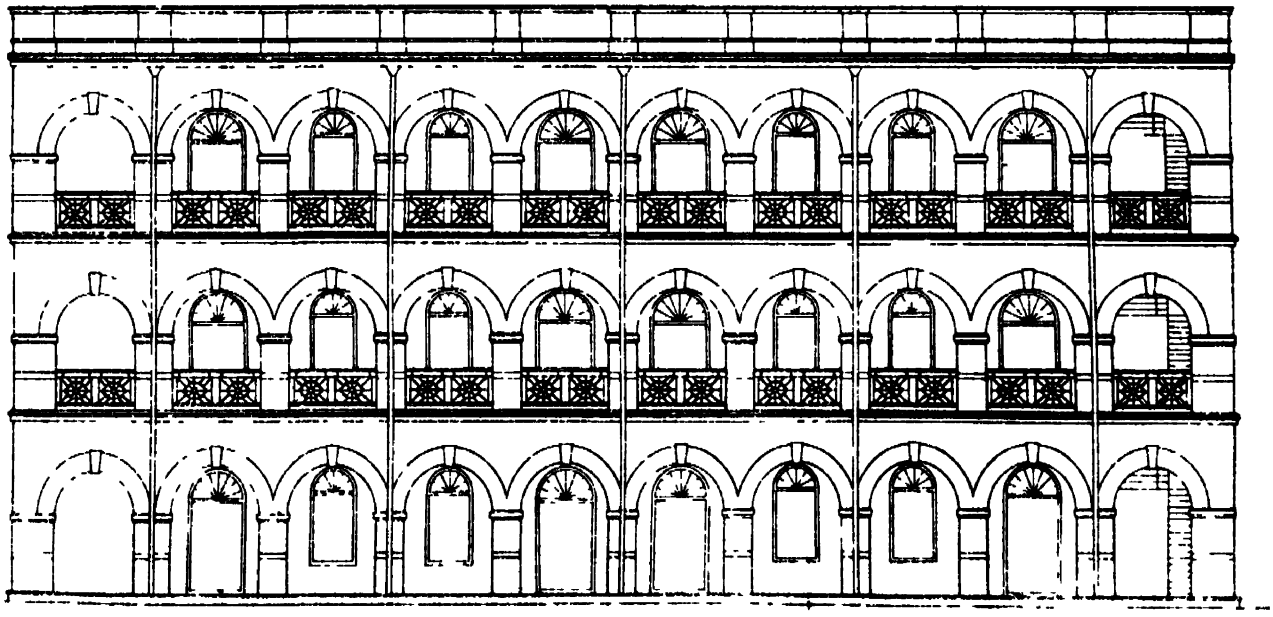
Scale of Feet.

Feet. 10 5 0 10 20 *Feet.*

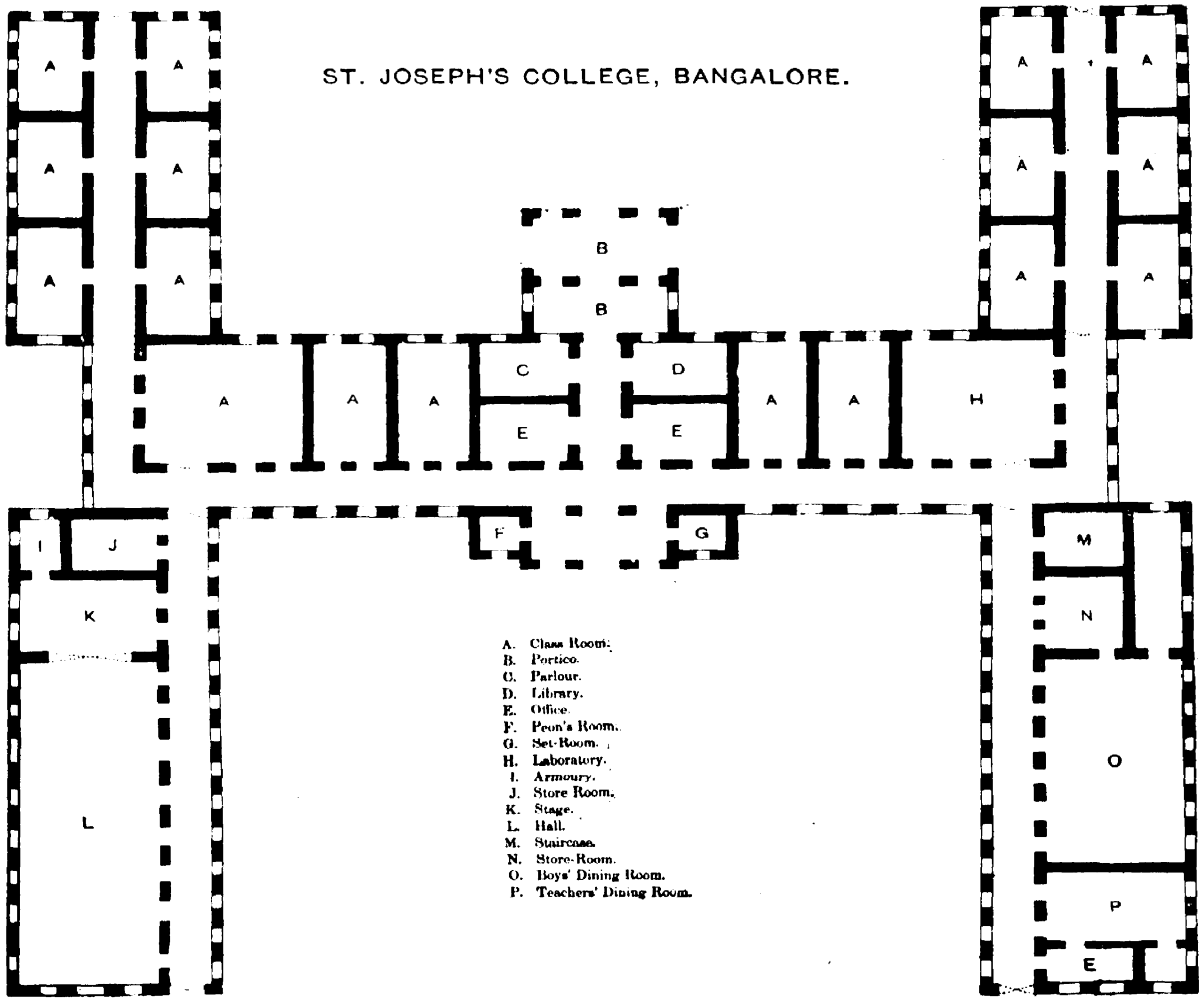


GROUND PLAN.

ELEVATION.



ST. JOSEPH'S COLLEGE, BANGALORE.



A. Class Room.
B. Portico.
C. Parlour.
D. Library.
E. Office.
F. Peon's Room.
G. Set-Room.
H. Laboratory.
I. Armoury.
J. Store Room.
K. Stage.
L. Hall.
M. Staircase.
N. Store-Room.
O. Boys' Dining Room.
P. Teachers' Dining Room.

St. Joseph's College, Bangalore.

St. Joseph's College has the advantage of being situated in a station whose climate is healthy and temperate. The mean temperature is 76·2° F, the average rainfall 36 inches in the year. Rainy mornings seldom occur, showers fall generally in the afternoon and evening. The hot season lasts three months from March to May, but the college holidays begin on the 1st May. The thermometer sometimes rises above 96 degrees F but even during the hot days most of the class rooms keep relatively cool owing to their facing the north and probably also on account of their thick stone walls.

The institution was established as a high school in 1857 and was raised to the rank of a second grade college in 1882. Its situation at one extremity of the town had many inconveniences and it was therefore decided to remove it to a more central part; and in 1898 the new buildings were inaugurated. The college is built in the form of the letter H and stands in a compound of about six acres. The length of each wing is 257 ft., while the width in the centre measures 260 ft. The walls of the lower storey are constructed of granite. The class rooms and offices are all on the ground floor, their height is 15½ ft., the floor area varies from 11·7 to 16 sq. ft. per student, allowing the maximum of 30 students to each class room. The laboratory measures 31¼ ft. by 30 ft. by 17 ft. high, and is found sufficient for the high school science classes. The hall including the permanent stage at one end measures 104 ft. long, the height is 18 ft. and 18½ ft., the width 30 ft., and a verandah 9½ ft. wide runs along the entire length of the building facing the playground, upstairs as well as downstairs. Two tennis courts in front and a playground at the back afford ample space for games. The greatest length of the playground is 170 ft., its width 325 ft. A small garden enhances the appearance of the façade of the college.

The upper storey, which comprises 20 rooms and two dormitories, is entirely used for the accommodation of teachers and boarders. It also contains a chapel projecting from the centre of the façade over the portico. The teachers' rooms correspond in size to the class rooms downstairs. The dormitories take the form of two halls 105 ft. long by 30 ft. wide. They are covered by a sloping roof with a central ridge 23 ft. from the floor. Ventilation has been carefully attended to, as each dormitory contains 26 openings, windows and doors, and at the top of the roof space has been left between the tiles for the escape of hot or foul air.

The water-supply comes from the municipality waterworks. Upstairs cement has been used for flooring, while the ground floor was originally laid with granite slabs, though these have been partially replaced by Cuddapah stone. This material will eventually be substituted everywhere for the other.

The Government College, Kumbakonam.

This consists of a straggling set of buildings, constructed at different dates, running from west to east on the banks of the river Cauvery. The college was built on the site of certain ancient buildings belonging to the Rajah of Tanjore, the somewhat irregular ground plan of which was followed. Later additions have been made as far as possible in keeping with the rest of the structure. The result of this has been that the rooms are perhaps more suited for a palace than a college, and, although their height renders them particularly cool, the acoustic properties are for that reason unsatisfactory. The building is throughout one storey with the exception of the towers.

The main building consists of six rooms and a tower and is in the middle of the whole block of buildings as these are at present. The tower is a three storeyed building, about 70 ft. high. The ground floor room of the tower is a perfect cube of 15 ft. and is used as a lobby, the first floor room, used as the principal's study, is a cubical room 15½ ft. each way and is reached by a spiral stair, above it is a room 17 ft. by 17 ft. by 12 ft. used for stores. Adjacent to the tower is a circular room used as an office. The main building (the original rooms) consists of five rooms with terraced roofs, three are in plan regular octagons, each side being 11 ft., the roofs of two of these are supported on wooden beams, the other has iron girders. The fourth room is an irregular octagon, the sides being alternately 12 ft. and 16 ft. The fifth room having a rounded end is about 31 ft. in diameter. The roof is on girders. The height of all these five rooms is 21 ft.

To the east is a large hall, originally built for examination purposes but now used as a library. Its internal dimensions are 48 ft. by 32 ft. by 30 ft. It is flanked on two sides by a verandah 10 ft. by 13 ft. At the northern end is an alcove covered by a half dome, 17 ft. in diameter. The roof is terraced and supported on wooden beams. At the southern end is a tower about 50 ft. high with a spiral staircase.

The western wing consists of a T shape set of buildings running west from the main buildings. The upright part of the T consists of four rectangular rooms of different dimensions (26 ft. by 21 ft., 16 ft. by 21 ft., 16 ft. by 21 ft.; and 21 ft. by 21 ft.), all these rooms are 21 ft. high and have a verandah of 11 ft. on either side. The roof is supported on wooden beams. One of these rooms, the one next to the office in the main buildings, is used as a common room for the professors. The top of the T consists of two rooms with a covered-in verandah between them. The dimensions of the two rooms are 35 ft. by 20 ft. by 21 ft. and 30 ft. by 20 ft. by 21 ft. respectively. The verandah has been converted into a room by means of a wooden wall built on the outside and fitted with venetian shutters. Its dimensions are 58 ft. by 21 ft. by 13 ft. The roof of one of these two rooms is supported on iron girders, that of the verandah room and of the other room being on wooden beams. These rooms are at present used for the teaching of physics and chemistry. The walls of all the rooms are of brick colour washed inside and painted outside.

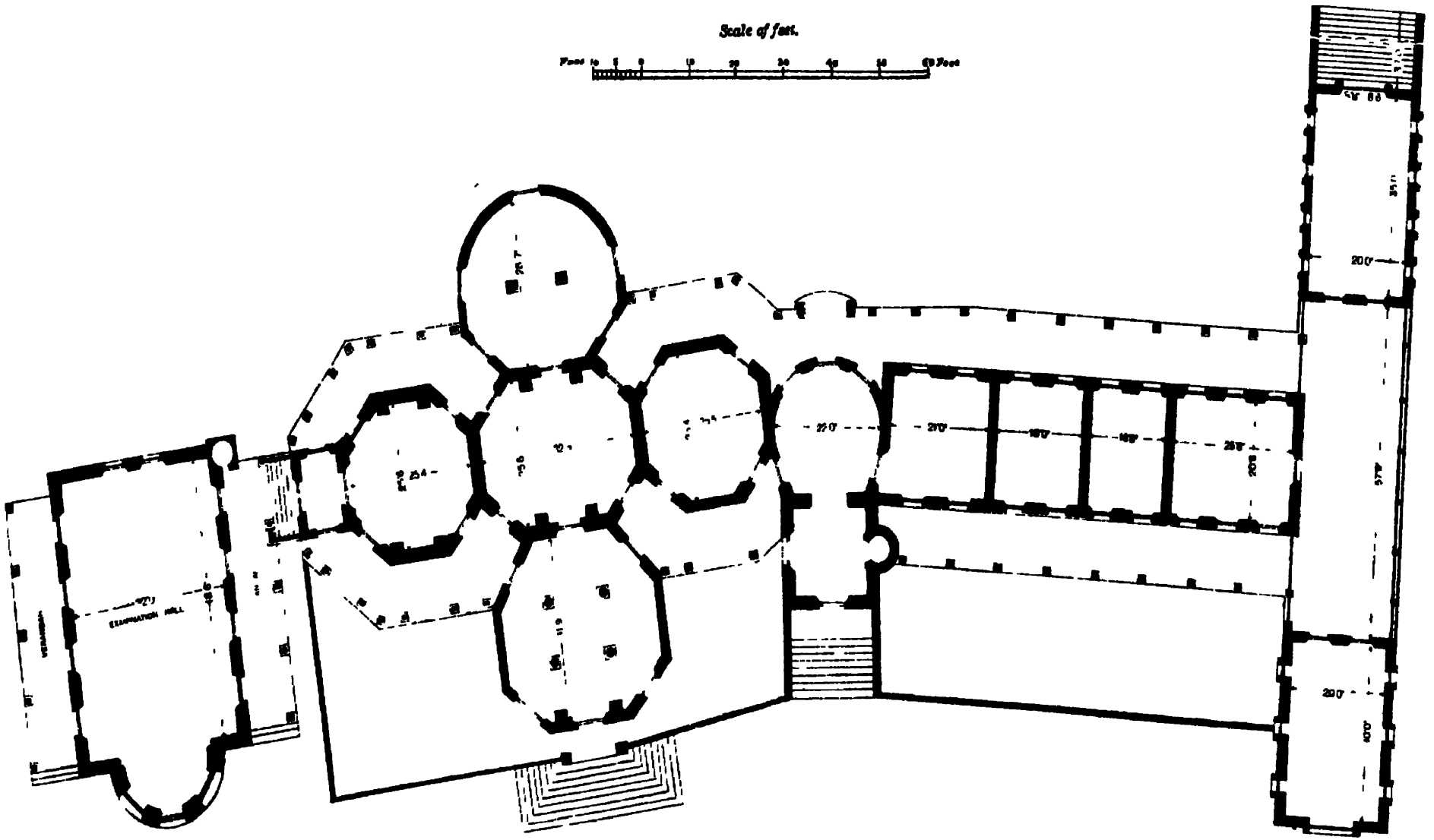
The numbers in the different classes vary between 25 and 70. It is found that the larger rooms in the building can conveniently accommodate about 50 or 60 students, except for the teaching of practical geometry where not more than 40 can be accommodated easily. For this latter subject each student has a separate table and stool. In other cases students sit at ordinary long desks. In nearly all the rooms there is an unfixed wooden dais for the lecturer 18 inches above the floor.

The compound is an irregular quadrilateral of about 12 acres, the sides being (roughly) 750 ft. and 700 ft. It contains a tank, 120 yds. by 110 yds., situated 120 yds. from the main buildings. Additional out-buildings are (1) a stable, (2) a thatched tiffin shed, 40 ft. by 23 ft., (3) a gymnasium 62 ft. by 30 ft. and (4) two latrines.

Steps are being taken to construct new rooms, consisting of three ordinary class rooms, two laboratories (physical and chemical) with the rooms and offices appertaining thereunto, to the east of the present set of buildings, and to acquire additional land to the extent of about 18 acres, for the principal's quarters and as an additional playing-field.

GOVERNMENT COLLEGE

KUMBAKONAM.



The Government College, Kumbakonam.

This consists of a straggling set of buildings, constructed at different dates, running from west to east on the banks of the river Cauvery. The college was built on the site of certain ancient buildings belonging to the Rajah of Tanjore, the somewhat irregular ground plan of which was followed. Later additions have been made as far as possible in keeping with the rest of the structure. The result of this has been that the rooms are perhaps more suited for a palace than a college, and, although their height renders them particularly cool, the acoustic properties are for that reason unsatisfactory. The building is throughout one storey with the exception of the towers.

The main building consists of six rooms and a tower and is in the middle of the whole block of buildings as these are at present. The tower is a three storeyed building, about 70 ft. high. The ground floor room of the tower is a perfect cube of 15 ft. and is used as a lobby; the first floor room, used as the principal's study, is a cubical room 15½ ft. each way and is reached by a spiral stair, above it is a room 17 ft. by 17 ft. by 12 ft. used for stores. Adjacent to the tower is a circular room used as an office. The main building (the original rooms) consists of five rooms with terraced roofs; three are in plan regular octagons, each side being 11 ft.; the roofs of two of these are supported on wooden beams, the other has iron girders. The fourth room is an irregular octagon, the sides being alternately 12 ft. and 16 ft. The fifth room having a rounded end is about 31 ft. in diameter. The roof is on girders. The height of all these five rooms is 21 ft.

To the east is a large hall, originally built for examination purposes but now used as a library. Its internal dimensions are 48 ft. by 32 ft. by 30 ft. It is flanked on two sides by a verandah 10 ft. by 13 ft. At the northern end is an alcove covered by a half dome, 17 ft. in diameter. The roof is terraced and supported on wooden beams. At the southern end is a tower about 50 ft. high with a spiral staircase.

The western wing consists of a T shape set of buildings running west from the main buildings. The upright part of the T consists of four rectangular rooms of different dimensions (26 ft. by 21 ft.; 16 ft. by 21 ft.; 16 ft. by 21 ft.; and 21 ft. by 21 ft.); all these rooms are 21 ft. high and have a verandah of 11 ft. on either side. The roof is supported on wooden beams. One of these rooms, the one next to the office in the main buildings, is used as a common room for the professors. The top of the T consists of two rooms with a covered-in verandah between them. The dimensions of the two rooms are 35 ft. by 20 ft. by 21 ft. and 30 ft. by 20 ft. by 21 ft. respectively. The verandah has been converted into a room by means of a wooden wall built on the outside and fitted with venetian shutters. Its dimensions are 58 ft. by 21 ft. by 13 ft. The roof of one of these two rooms is supported on iron girders, that of the verandah room and of the other room being on wooden beams. These rooms are at present used for the teaching of physics and chemistry. The walls of all the rooms are of brick colour washed inside and painted outside.

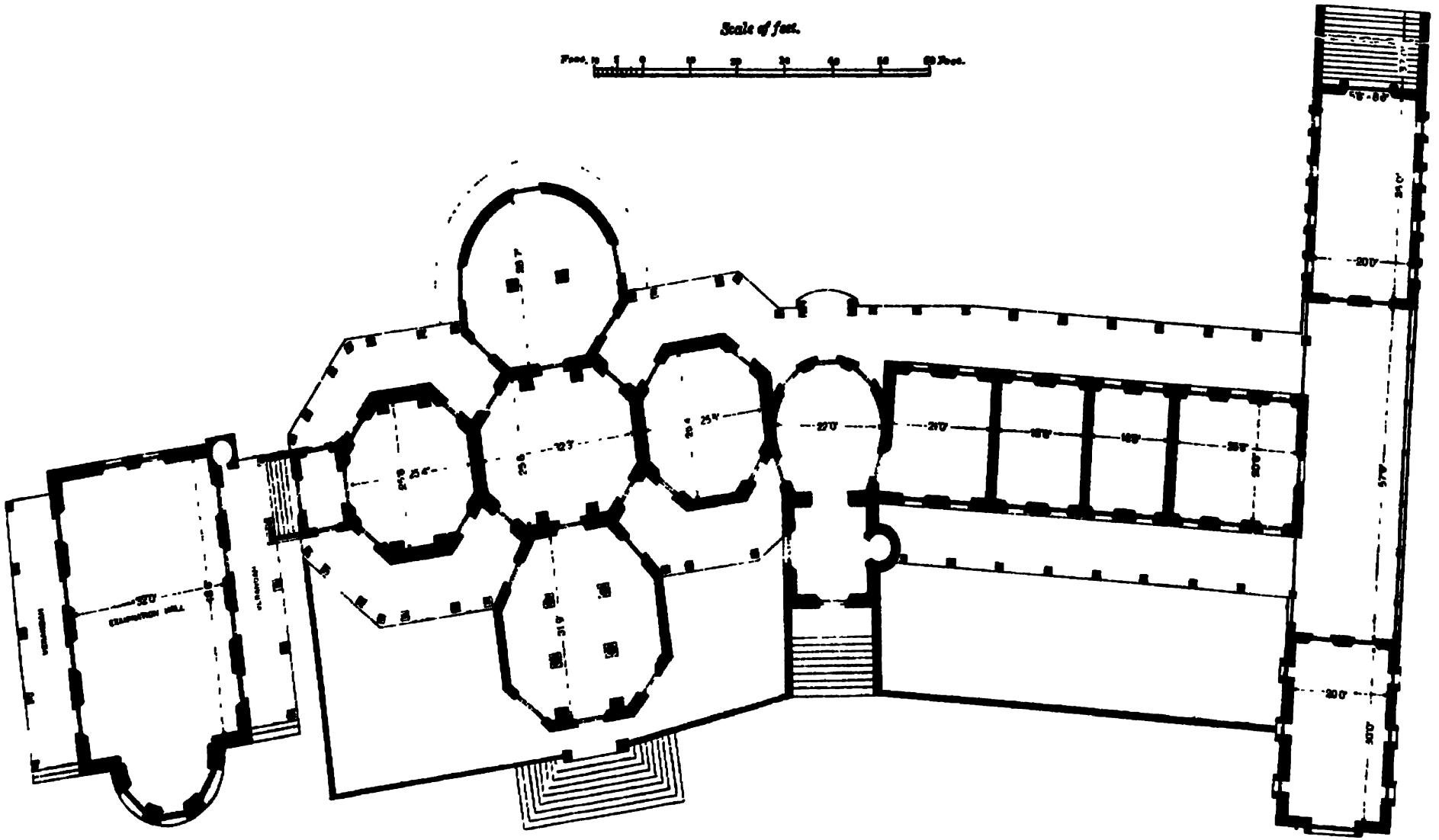
The numbers in the different classes vary between 25 and 70. It is found that the larger rooms in the building can conveniently accommodate about 50 or 60 students, except for the teaching of practical geometry where not more than 40 can be accommodated easily. For this latter subject each student has a separate table and stool. In other cases students sit at ordinary long desks. In nearly all the rooms there is an unfixed wooden dais for the lecturer 18 inches above the floor.

The compound is an irregular quadrilateral of about 12 acres, the sides being (roughly) 750 ft. and 700 ft. It contains a tank, 120 yds. by 110 yds., situated 120 yds. from the main buildings. Additional out-buildings are (1) a stable, (2) a thatched tiffin shed, 40 ft. by 23 ft., (3) a gymnasium 62 ft. by 30 ft. and (4) two latrines.

Steps are being taken to construct new rooms, consisting of three ordinary class rooms, two laboratories (physical and chemical) with the rooms and offices appertaining thereunto, to the east of the present set of buildings, and to acquire additional land to the extent of about 18 acres, for the principal's quarters and as an additional playing-field.

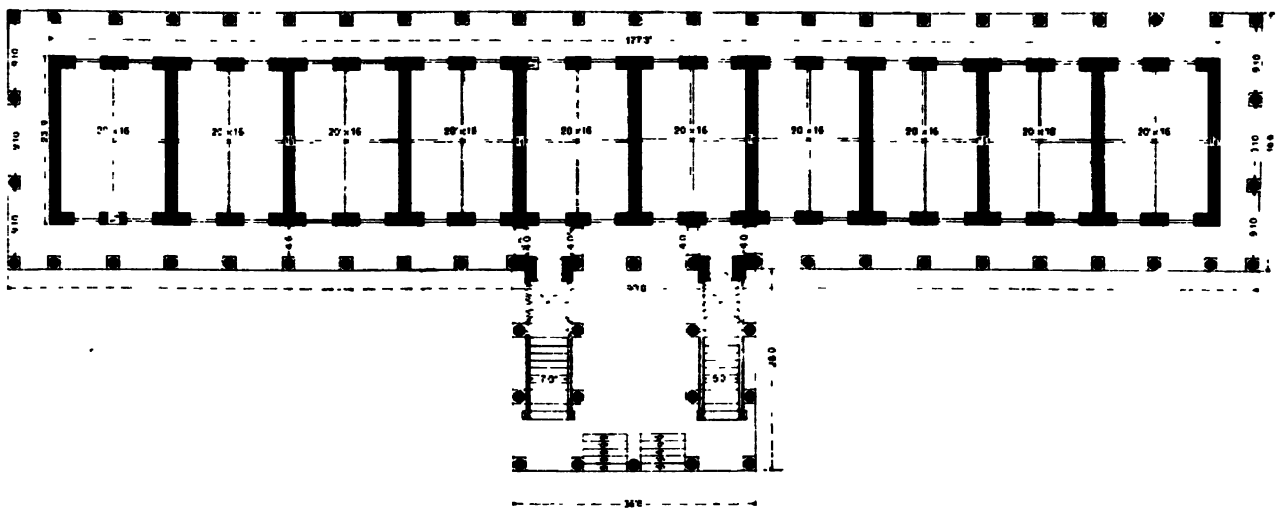
GOVERNMENT COLLEGE

KUMBAKONAM.



STUDENTS' HOSTEL, KUMBAKONAM.

Scale of Feet.



PLAN OF GROUND FLOOR

The Victoria Jubilee Hostel at Kumbakonam.

This is a building raised by public subscription in memory of the Jubilee of the late Queen-Empress, and intended for students of the Government College, Kumbakonam. It is situated in its own compound of about 5 acres, next to the college compound, and in front of the bank of the Cauvery, while in the front of it there is an extensive reach of paddy-fields. The buildings were erected in 1905 at a cost of Rs. 61,000. The building is some way clear of the town and is in a healthy, though low, position. The main building is two storeyed, and consists of two suites of living rooms, nine on the ground floor and eight on the first floor, each 20 ft. by 16 ft. by 10 ft. and a hall 27 ft. by 34 ft. by 23 ft. on the first floor, for the use of the students as a reading room. Each of the living rooms is divided into four compartments, 10 ft. by 8 ft. by 10 ft., by means of wooden panelled partitions, about 8 ft. high, each of which, for the sake of ventilation, have one of the panels made of lattice work. On each floor there is a verandah 6½ ft. wide running all round the building. The lighting of the lower floor rooms is hardly satisfactory. The upper rooms are lit by glass panes in the roof and are light and airy.

In front of the main building is a separate house for a Hindu sub-warden. On either side of the building are kitchens, each kitchen building containing two rooms for cooking and two dining rooms. A bath shed and latrine are built separately. There are two badminton courts in the compound for the use of the boarders.

Dayaram Jethmal Sind College, Karachi.

The foundation stone of the Dayaram Jethmal Sind College was laid by His Excellency Lord Dufferin in 1887, and the building was completed and opened in 1892. It occupies a fine position in a compound of about 4½ acres, of which 16,485 sq. yds. are in the occupation of the college, the remainder being occupied by the Victoria Museum, which forms a wing of the building, but is controlled by the Karachi Municipality.

The climate of Karachi is considered temperate, and though the shade temperature may range from below 40 to above 115° F., it is only on exceptional days that the thermometer, in a building like the college, would fall below 60 or rise above 90°. In the winter the climate is dry, with prevailing north-east winds, while in summer the winds are about south-west by south, being hot and moist in June and July. The rainfall is very variable, but averages only about 6 inches per year.

The college is a two storeyed building, facing south-south-west, for the most part only one room deep, and having a façade, including the Victoria Museum, 431 ft. long. Except at the centre and wings the depth of the building is 58 ft. and its height about 43 ft. The plinth is 5 ft. high and supports, both in front and rear, open arcades of block-in-course masonry, the arches being 6 ft. wide, 11 ft. high and 12½ ft. from centre to centre. The balustrades in the arches are of stone. The central tower is 120 ft. high, and is finished with a dome 30 ft. in diameter. In front of the dome is projected a portico of the Ionic order, the pillars of which are 29 ft. high, leading through an open vestibule floored with mosaic tiles to the main staircase under the dome. The floors of the lower rooms are of dressed stone, while the upper rooms have concrete flooring.

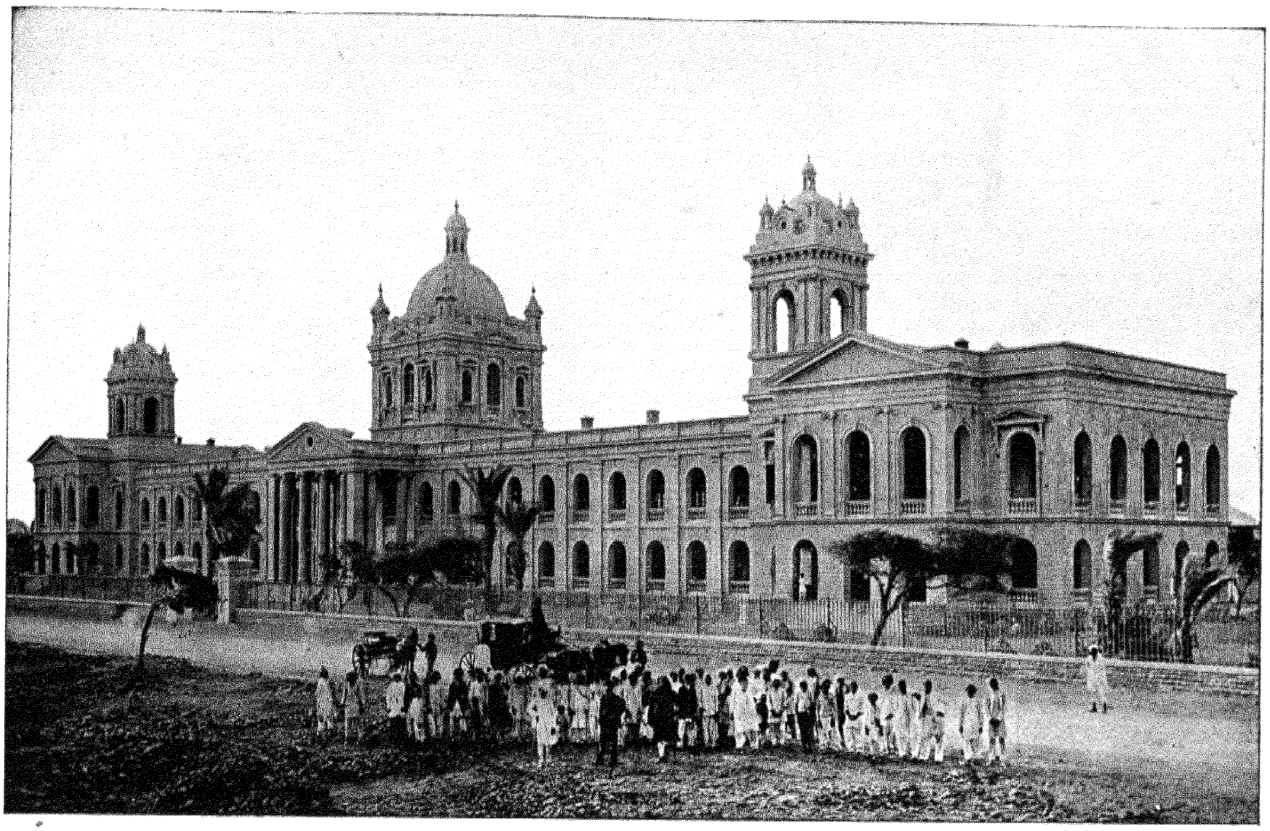
At the extremity of the east wing is a lecture theatre 54 ft. by 34 ft. by 35 ft. high. The Victoria Museum forms the west wing.

A verandah 12 ft. wide runs along the front of the college, and there is a 9-foot verandah at the back. Most of the rooms are 30 ft. by 23½ ft. by 14½ ft. high, the width corresponding to the space occupied by two arches, which forms the architectural unit. The lighting is mostly through glazed doors opposite the arches, with small ventilating openings above. The ventilation is sufficient for a breezy place like Karachi, but the illumination is rather too horizontal and irregular, and has been supplemented in some of the upper rooms by building dormer windows on the roof.

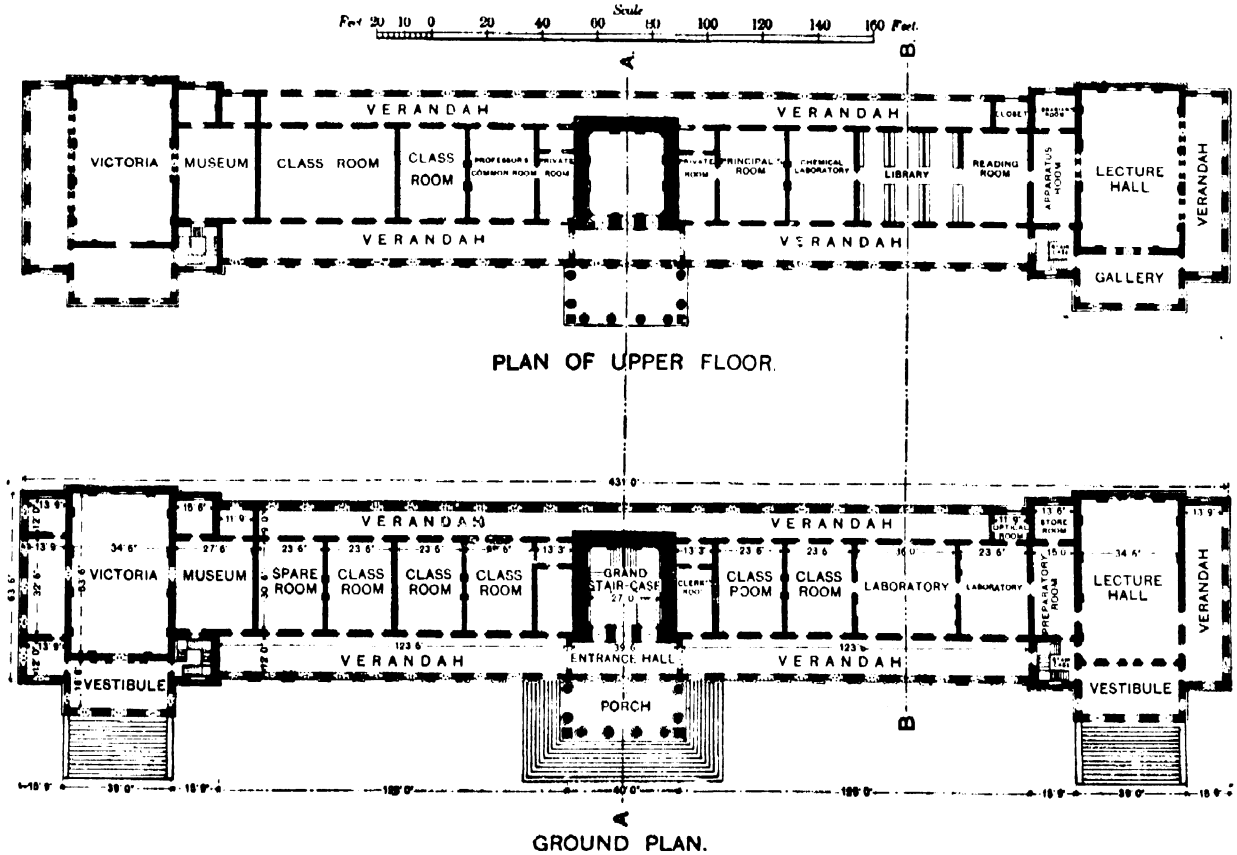
There are 12 rooms of the ordinary size in the building, and about a dozen smaller subsidiary rooms; while the class room of the previous class is 48 ft. by 30 ft. by 19 ft. high, comprising four of the units above mentioned, and the library and the main physical laboratory occupy three units.

The lecture theatre and class rooms for the three principal Arts classes are fitted with rising tiers of benches, and the theatre is fitted with a table for physical demonstrations. The Victoria Jubilee Physical Laboratory comprises three main rooms with cupboards for physical apparatus, etc.; there is also a small dark room and a balance room. The chemical laboratory is a room of ordinary size fitted with work benches, etc., and is also used by students of biology. The engineering branch has a machine and metal-working room, a carpenter's workshop, and a drawing office besides a class room and small store room. Adjoining the Lord Reay Library upstairs, which contains 5,000 volumes, is the students' reading room. There are rooms for the principal and professors, and for the college office. The professors' common room is used also as a board room. More room is needed for chemistry and biology, and for workshops, while the accommodation for examination work is inconvenient, examinations being held in the lecture theatre and two or three of the class rooms simultaneously. The Arts branch is growing so fast that in a year or two it will probably be necessary to divide all three of the principal Arts classes, involving the provision of three new class rooms, while several new smaller rooms are required for small special classes. The accommodation may therefore be pronounced generally insufficient for present wants.

The compound is surrounded by a wall and iron railing about 8 ft. high. It is mostly laid out as a garden, but there are two tennis courts and a gymnasium behind the building.



DAYARAM JETHMAL SIND COLLEGE, KARACHI.



The Architect was Mr. J. Strachan, Engineer to the Municipality of Karachi. The cost of the college without the museum, but including the outhouses and compound railing, was Rs. 1,86,514. This is something under 4 cubic ft. gross volume per rupee, or about Rs. 8-3-0 per sq. ft. of the block plan.

During the last 20 years the expenditure on scientific apparatus has been about Rs. 25,000, and that on library books rather less than this. The cost of engineering apparatus and tools has been considerably under Rs. 10,000, while furniture has cost about Rs. 10,000.

Metharam Students' Hostel attached to the Dayaram Jethmal Sind College, Karachi.

The foundation stone of the Metharam Students' Hostel was laid by His Excellency Lord Harris in 1894, but owing to financial difficulties caused by plague the hostel was not completed till 1901. It is situated on a triangular plot of land facing the college and measuring 23,611 sq. yds. The site is a good one, except that there are poor tenements, sometimes visited by plague, near the back of the compound. These are, however, some distance from the building, and cut off from the compound by walls without openings, so that no plague case has hitherto occurred either in the hostel or in its servants' quarters.

The building consists of a single block on three floors. It has a frontage of 287 ft., facing east by north; its general depth, except at the centre and wings, is 40 ft., and its height to ridge of roof 49 ft. The external walls are of rubble, and the verandah floors are supported by ashlar pillars, with balustrade of open iron work between. The lower floors are paved with stone, and the upper floors are of wood carried on teak joists. Mangalore tiles form the roofing material. Each student has a separate room, 12 ft. by 10 ft., and from 12 to 16 ft. high. There is a verandah 12 ft. wide in front of the rooms, and another 8 ft. wide at the back. The south wing forms the present superintendent's residence. There are rooms for 76 students, but half-a-dozen more are accommodated in rooms not at present required for other purposes.

The total cost of the building, including cost of servants' quarters and compound wall, was Rs. 1,18,935, being at a rate of about 5 cubic ft. gross volume per rupee, or about Rs. 9-1-0 per sq. ft. on the block plan of the hostel.

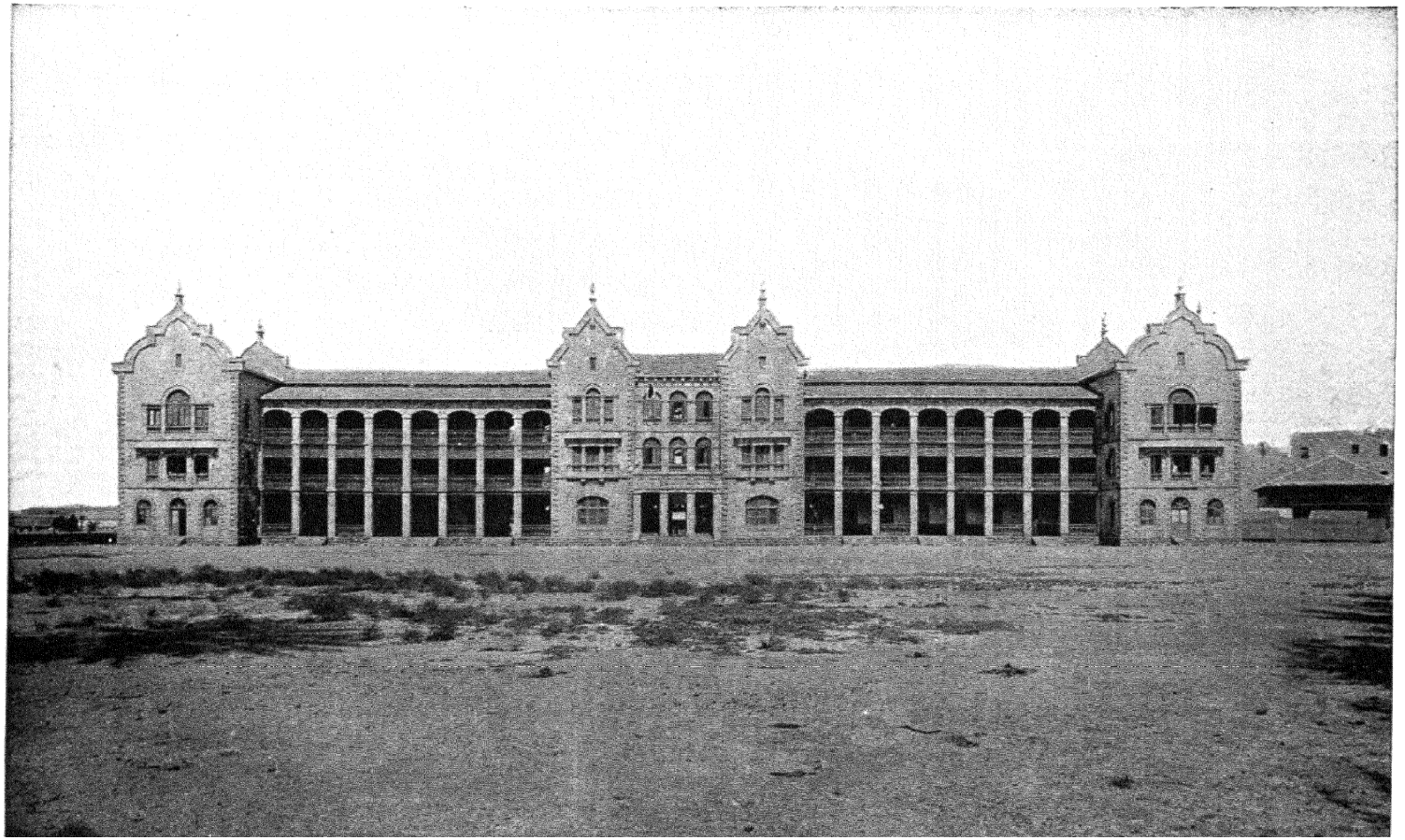
The hostel was furnished at a cost of Rs. 9,000, each room being furnished in European style, the furniture including iron cot with spring mattress, dressing table with mirror and drawers, cupboard with book-case, duplex lamp, etc.

There are three large rooms in the centre of the building, two dining rooms and one intended for use as a common room for the students. The reading room is in the main college. Some of the students dine in the hostel, but others dine in out-buildings in rooms beside the kitchens. At present the students form messes of their own and employ their own cooks, etc., but this system may very well be changed. The rent paid by each student is Rs. 23 per term, this including the use of furniture, the service of the hamals, massals, etc., and the cost of lamp oil. Water is laid on to lavatories in the north wing, but ablutions are mainly performed in a separate bathing house, the water from which irrigates a distant part of the compound. The halalcore service required for the external latrines is performed by municipal carts, the sewer system of the municipality not having yet been developed in this neighbourhood.

There is a cricket pitch of rather limited extent in front of the hostel, and behind the building is space for several tennis courts.

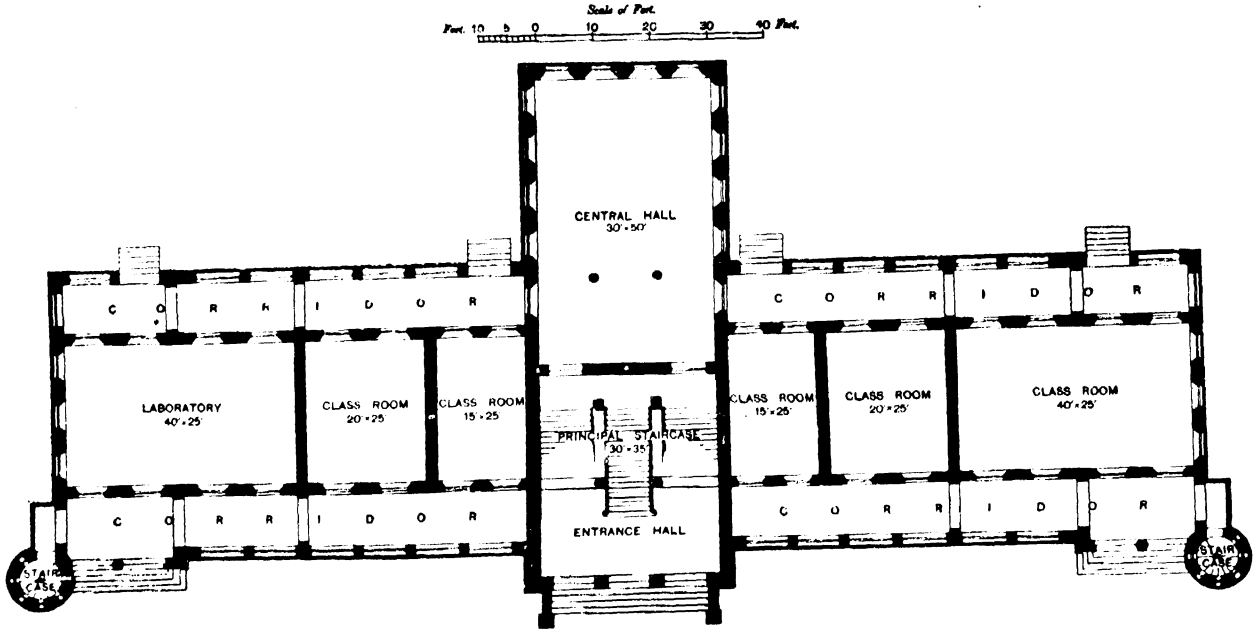
Besides the superintendent, one or two Dakshina fellows are usually accommodated in the hostel, these occupying ordinary rooms. It is intended to appoint a second European professor who shall be superintendent of the hostel, and to build a separate house for him.

As not one-half of the mofussil students who would gladly live in the hostel can be accommodated therein, the hostel accommodation may be pronounced insufficient. In the near future its inadequacy will probably be still more marked.



THE METHARAM HOSTEL OF THE DAYARAM JETHMAL SIND COLLEGE, KARACHI.

THE GUJRAT COLLEGE, AHMEDABAD.



The Gujrat College, Ahmedabad.

The college buildings are situated on the west of the river Sabarmati, and were built towards the end of the last century at a total cost of Rs. 2,00,162.

The central feature of the main building is a lecture hall 50 ft. by 30 ft. with a staircase and entrance hall in front 35 ft. by 30 ft. The two symmetrical sets of rooms on each side of the central hall consist of class rooms (15 ft. by 25 ft., 20 ft. by 25 ft. and 40 ft. by 25 ft.) which have areaded verandahs 10 ft. 6 in. in width in front and rear. At the ends of the building are circular towers which contain spiral staircases. At the first floor level, there are hanging galleries looking down into the lecture hall.

The upper floor consists of a class room 15 ft. 3 in. by 25 ft. 9 in., a reading room 20 ft. 3 in. by 25 ft. 9 in., a fellows' room 20 ft. 1½ in. by 25 ft. 9 in. and a professors' room 20 ft. by 25 ft. 9 in. on one side of the hall, with a lavatory in a corner of the back verandah, and on the other side, an office 15 ft. 3 in. by 25 ft. 9 in., a class room 20 ft. 3 in. by 25 ft. 9 in., another class room 20 ft. 1½ in. by 25 ft. 9 in. and a room for the principal 20 ft. by 25 ft. 9 in. with a lavatory in the south-west corner of the back verandah.

The height of the plinth is 3 ft. and the height of the ground floor is 18 ft. and that of the upper floor 22 ft. up to the bottom of the trusses.

The college is supplied with pipe water taken from the municipal water-supply system.

Baha-ud-din College, Junagadh.

The foundation stone of the college building was laid by Colonel J. M. Hunter, C.S.I., late Political Agent, Kathiawar, on the 25th March 1897. His Excellency Lord Curzon formally opened the institution on the 3rd November 1900. The total cost of construction of the building was Rs. 2,50,000.

The climate of Junagadh is hot and dry and generally salubrious, except for a month or two after the rain when malaria is prevalent. The temperature in the shade ranges between 53° F. and 108° F. The annual average rainfall is from 25 to 30 inches.

The college building is beautifully situated about 300 yds. away from the city walls in an open space. From the terrace on its roof a magnificent panorama meets the eye, including the city of Junagadh with its imposing buildings, the sacred Girnar and Datar hills and extensive plains on the western side stretching far away towards the horizon. The college grounds cover about 12 acres of land and are bounded by a low stone wall. The building itself occupies 3,272 sq. yds. and in the open space surrounding it are two cricket grounds and two tennis courts.

The college is a two storeyed building facing the east, and is 291 ft. long, 95 ft. in breadth and 108 in height. It can be divided into three parts transversely, the two wings for class rooms and a central lecture theatre, which is 100 ft. long, 60 ft. broad and 58 ft. high. The wings contain 16 class rooms, each 30 ft. long, 20 ft. broad and 30 ft. high. On three sides of the lecture theatre there projects a wooden gallery 4 ft. wide. Each room is provided with three doors and two windows, thus ensuring sufficient light and ventilation.

The structure is made of Junagadh stone, similar to Porbandar but warmer in colour. The central hall, which is the largest in Kathiawar, is paved with Italian white marble with an ornamentation in the centre and border of black marble.

The plinth is 5 ft. above the level of the ground. A verandah 10 ft. wide runs all round the building. Each wing is decorated with three ornamented domes, each 69 ft. from the ground, while in the centre there is a more elaborately designed and imposing dome 105 ft. from the ground.

Of the 16 class rooms, eight rooms in the northern wing are at present occupied by the high school, and the remaining rooms, including the central hall, are used by the college.

On the ground floor are the science rooms, including a lecture room, an experiment room, a room for practical work by students, and also the B.A. class room. On the second floor are the previous and the intermediate class rooms, the principal's room, the office room and four small private rooms for the use of the professors.

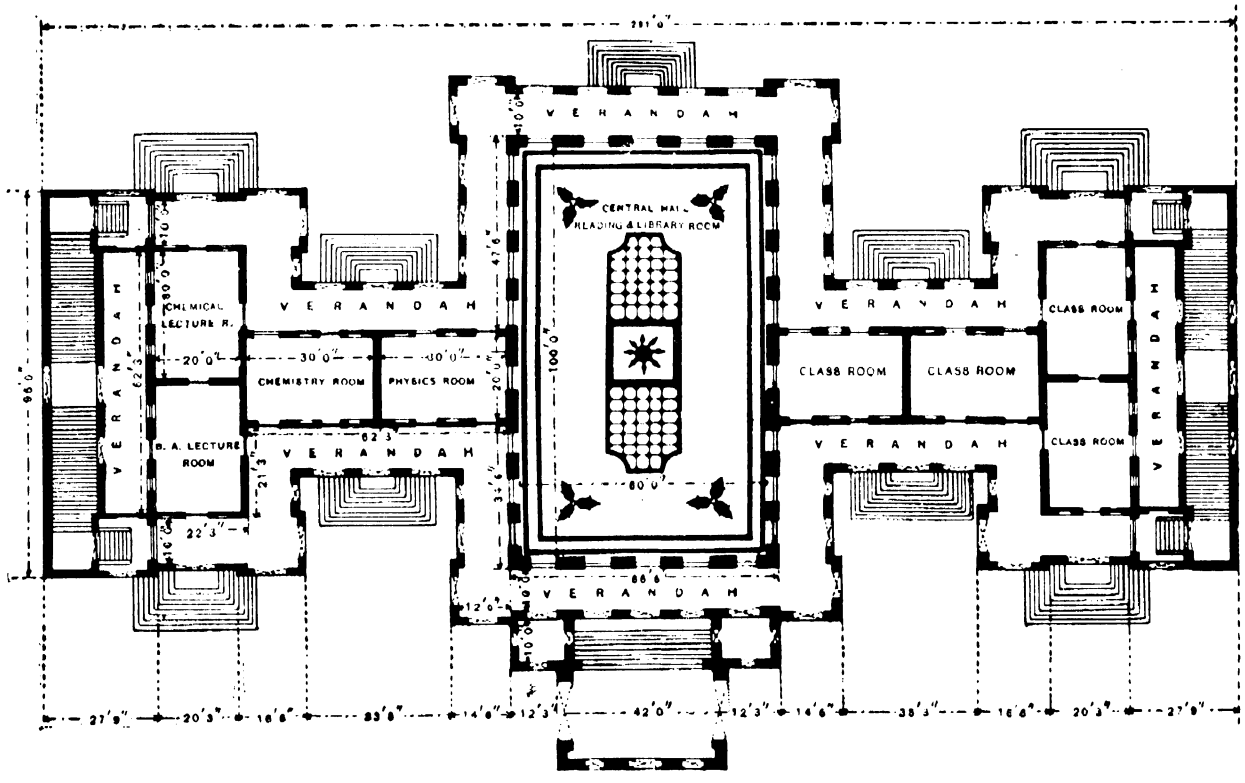
The large hall is used as library, reading room, and examination hall. It is well suited for these purposes, being extensive, well ventilated and well lighted. There are at present 10 large book-cases filled with reference works and other books of general information, and the State annually grants a sum of Rs. 1,500 for the purchase of books.

A like sum is given annually for the purchase of physical and chemical apparatus and chemicals for the science department. The University Committee of Inspection, which visited the college in 1906, recorded its opinion that the institution was adequately equipped for the teaching of science up to the B.A. standard, and since that year there have been certain additions to the scientific apparatus; and a combustion chamber, water installation and eleven new sinks have also been provided.

In connection with the college there are two very useful institutions—a student's debating club and a gymkhana.

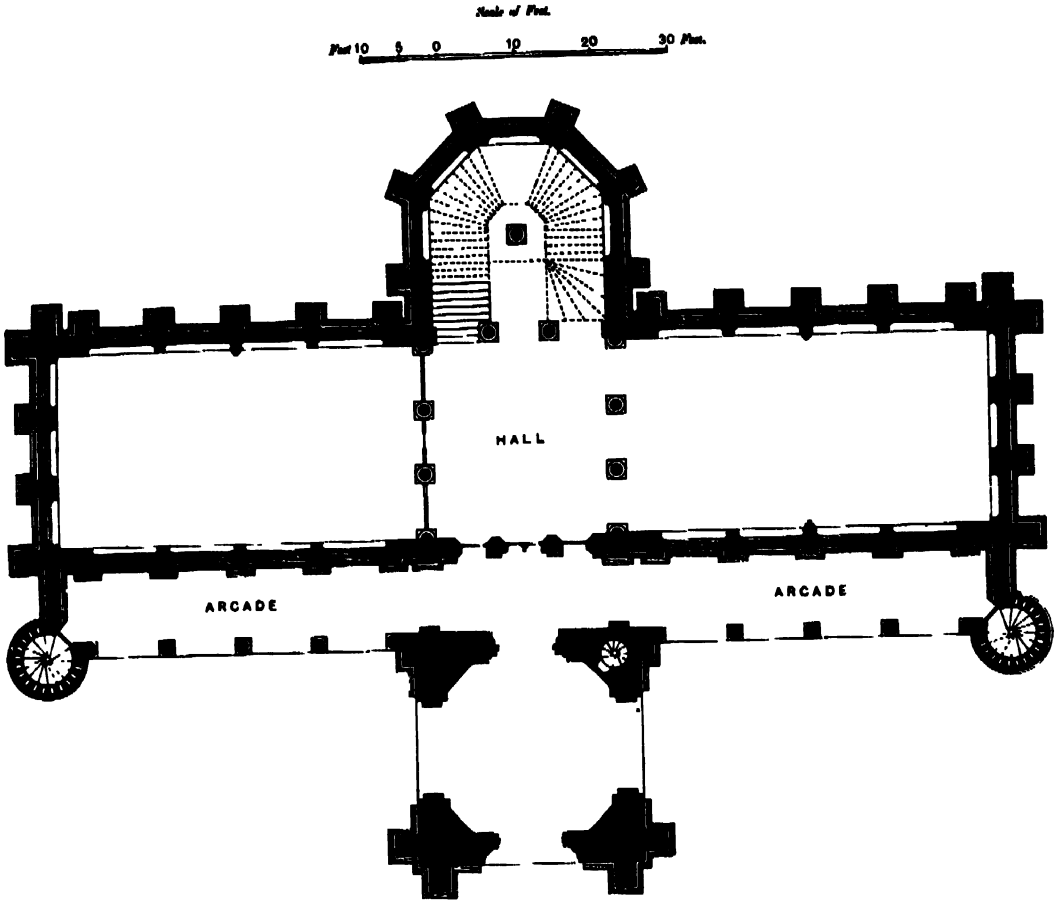
Towards the west at a few yards' distance from the college building is situated a fine house for the principal, surrounded by a garden. Towards the south-east and not far from the college are the hostels with accommodation for 72 students and three professors. These hostels are situated on open high ground and are said to be the finest in the presidency. They were built at a cost of Rs. 70,000. The students' quarters contain 36 furnished rooms each 14 ft. long, 12 ft. broad and 19 ft. high with a 7 ft. wide verandah both in the front and in the rear. Separate cook rooms and dining rooms are provided for students of different castes.

BAHA-UD-DIN COLLEGE, JUNAGADH.

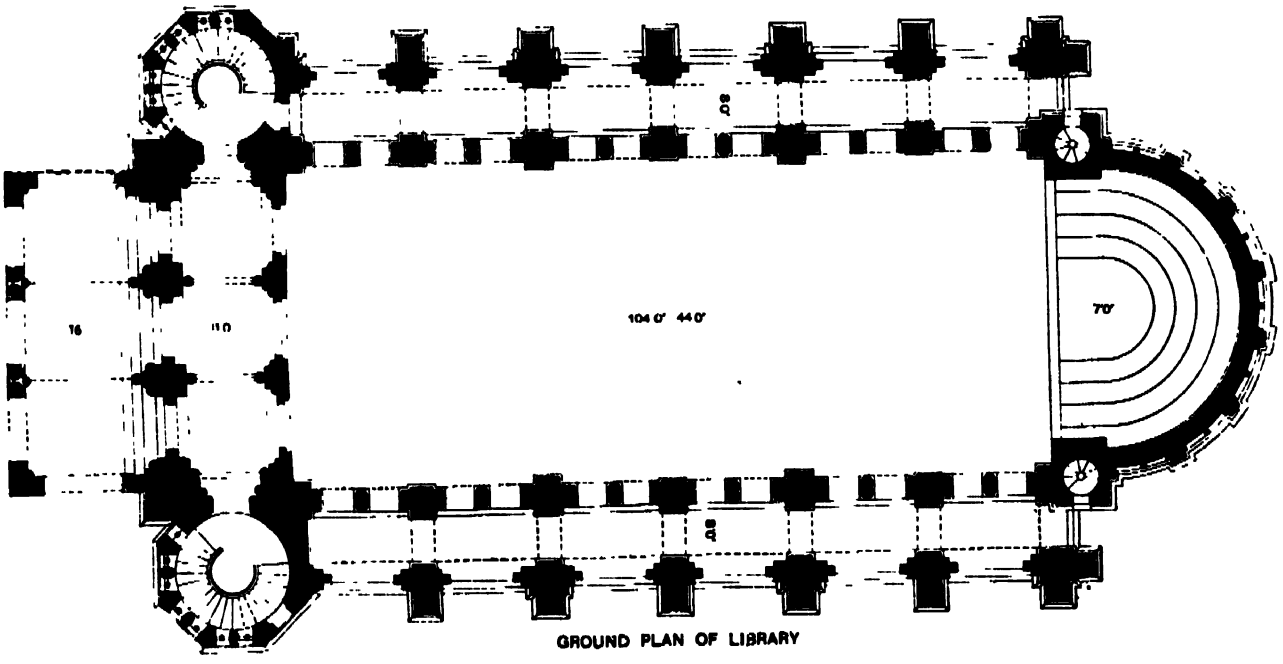


PLAN OF GROUND FLOOR.

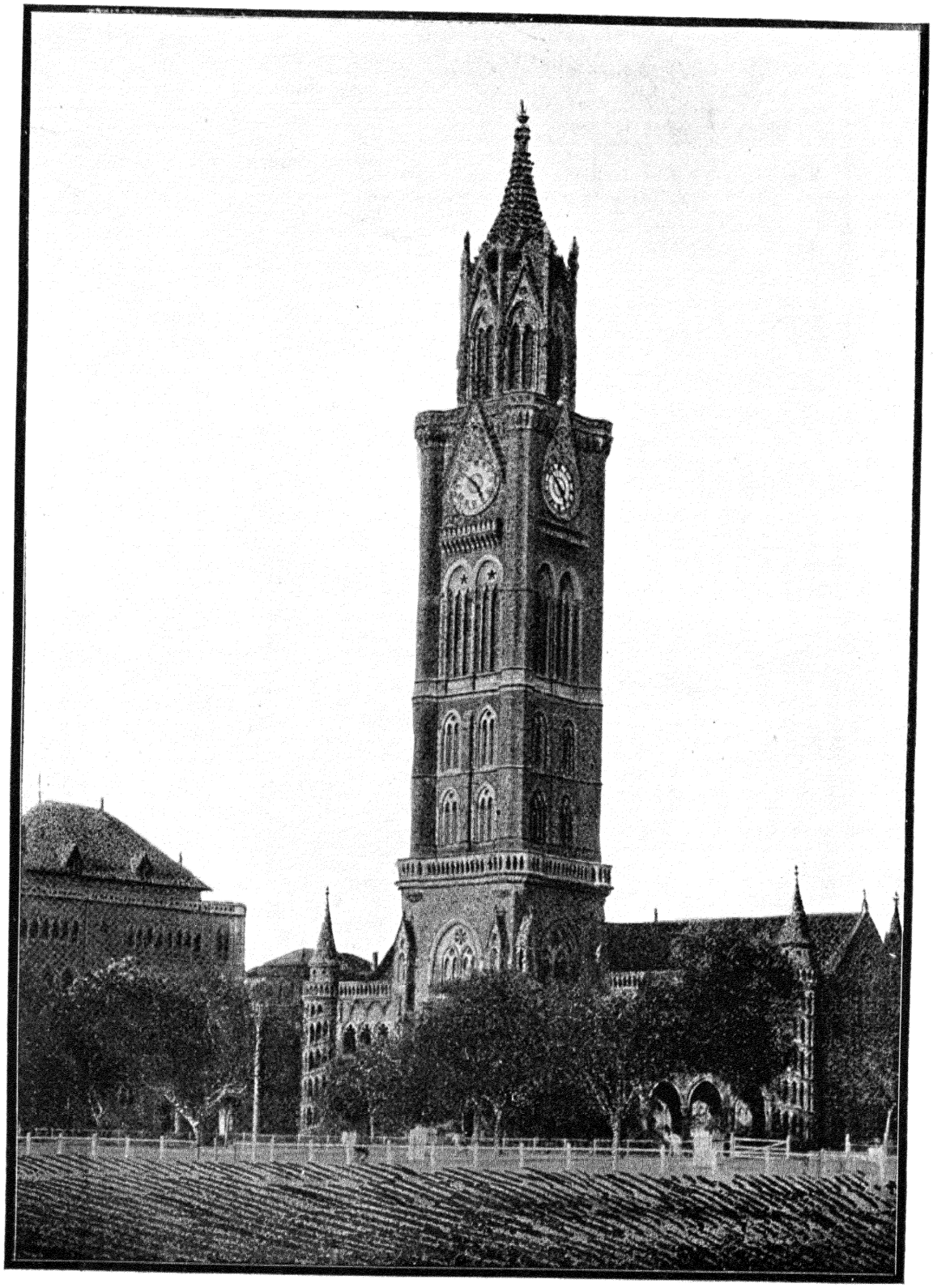
UNIVERSITY LIBRARY AND CLOCK TOWER, BOMBAY.



GROUND PLAN OF HALL



GROUND PLAN OF LIBRARY



UNIVERSITY LIBRARY AND CLOCK TOWER, BOMBAY.

University Senate Hall and Library, Bombay.

Next to the Secretariat are two smaller buildings, both by Sir Gilbert Scott, the first the Senate or Sir Cowasjee Jehangier Hall of the University, the second the University Library and Rajabai Clock Tower. The architecture of the Senate Hall is of an early French type of the 13th century. The hall is 104 ft. in length, by 44 ft. in breadth, with a height of 63 ft. to the apex of the groined ceiling, with a semi-circular apse of 38 ft. diameter, separated from the hall by an imposing arch, occupying a space of 7 ft. in the length of the building. The front corridor is 11 ft., and the side corridors 8 ft. broad in the clear. There is a gallery round three sides of the hall, 8 ft. in breadth, supported on ornamental iron brackets, and reached by staircases in octagonal towers at either side of the entrance porch. The facing is of Coorla hammer-dressed rubble in courses of 5 inches depth, pointed with Portland cement. The plinth is of chisel-dressed Coorla; bases, capitals, cornices, and all other dressings of Porebunder; shafts of blue basalt, except in the main entrance, where they are marble. The groining is turned in buff bricks with Porebunder stone ribs; the floors paved with Minton tiles, and roofs of Taylor's patent tiles. The Sir Cowasjee Jehangier Hall of the University of Bombay was erected from designs by Sir Gilbert Scott, R.A., and sanctioned by the Government of Bombay on the 16th January 1869. The work was commenced on the 1st March 1869, His Excellency the Right Honourable Sir Seymour Fitzgerald, G.C.S.I., Chancellor; the Reverend John Wilson, D.D., F.R.S., Vice-Chancellor; and was completed on the 31st December 1874, His Excellency the Honourable Sir Phillip Edmond Wodehouse, K.C.B., Chancellor; the Honourable James Gibbs, C.S., Vice-Chancellor. The work was carried out under the immediate orders of Lieutenant-Colonel J. A. Fuller, R.E., from March 1869 to May 1871; J. H. E. Hart, M. Inst., from May 1871 to November 1872; Colonel J. A. Fuller, R.E., from November 1872 to December 1874, Rao Saheb Muckoond Ramchunder being Assistant Engineer in charge. Sir Cowasjee Jehangier, Kt., C.S.I., contributed Rs. 1,00,000. Estimate as sanctioned Rs. 4,15,804; actual cost, Rs. 3,79,389.

Among the public buildings that have been erected in Bombay, the University Hall stands pre-eminent, both as regards the purposes for which it was erected and the beauty of its architecture. The general appearance of the University Hall is pleasing, as might be expected in work from the hand of Sir Gilbert Scott. An air of sobriety characterises the whole design, and few will deny that it bespeaks the purpose for which it is intended. The open staircases are novel in idea, but it has been found necessary to protect them during the monsoon. The porch is an elegant addition to the building, and being placed at the north end affords sufficient protection to the entrance doorways, though the arches are carried up to the highest point the horizontal cornice would allow. The four spirelets are not merely ornamental as might be supposed, for up to a very short distance of the termination of the square they contain the stone staircases that lead to the roof gutters, and the additional weight obtained in the case of the two southern ones acts as a counterpoise to the thrust of the large interior arch. The finials that terminate them at the apex, being seen against the sky, are conspicuous features and are well proportioned.

The interior of the building, arched over by massive ribs of stone and presenting one unbroken line of vaulting from end to end intersected only from the apse by the large arch, conveys to the mind a sense of some grandeur; while the stained glass with which the windows are fitted gives a feeling of richness.

University Library.—The University Library and Clock Tower was also designed by Sir Gilbert Scott, and carried out in the same manner as the University Hall by detail drawing provided by Mr. Molecey, the resident architect. The ground floor contains two side rooms, each 56½ ft. by 30 ft., a central hall 30 ft. by 27½ ft. and a staircase vestibule 28 ft. square, projecting to the rear in an octagonal form, whilst to the west front is the tower, forming a carriage porch 26 ft. square, inside measurement, and 36 ft. outside, so that the walls are each 5

ft. thick. The total length of the building is 152 ft. Along the west front is an open arcade 14 ft. wide with round open staircases at either end, leading to the floor above. The arcade is groined in quadrapartite vaulting in Porebunder stone. The upper floor, which is devoted to the library and reading room, consists of one room extending the whole length of the building, its measurement being 146 ft. by 30 ft. and 32 ft. to the apex of the arched teak-panelled roof that covers it. Over the carriage porch there is the tower which forms such a conspicuous feature in the panorama of Bombay, and which is 280 ft. high from the ground to the top of the metal finial. The height of the first stage where the square form is changed is 68 ft., the second stage to the top of the tower 118 ft. and the third stage to the top of the finial 94 ft., total 280 ft. The height to the centre of the clock face, which is 12 ft. 6 in. internal and 16 ft. 6 in. external diameter, is 167 ft. The clock face is illuminated by light at night-time, a jet of the light being always kept burning, so that by a mechanical arrangement it can be turned on at a certain hour by the machinery itself. The staircase octagonal vestibule is groined in Porebunder stone, the ribs springing from corbelled dwarf columns. The landing to the staircase, which is 9 ft. wide, is also groined underneath, the two cross arches springing from the carved corbelled heads of Homer and Shakespeare that are ingeniously carved out of the capitals of the two large columns supporting the wall above. The large windows that light the staircase, as well as the windows of the library, are all glazed with stained glass obtained from the studio of Messrs. Heaton Butler and Bayne of London. Amongst the items especially worthy of notice is "the peal of joy bells" contained in the open spirelet of the tower, which, together with the clock, has cost about Rs. 30,000. Fifteen feet above the gallery, in niches cut in the pillars which form the corners of the octagon, are large figures, each 8 ft. high, representing the different races and costumes of Western India, and higher still, some thirty odd feet above the gallery, where the octagon ceases and the cupola commences, are another series of figures of the same description, standing out boldly at the top of the pillars supporting the angle ribs of the cupola. These figures, which have been modelled by Rao Bahadur Muckoond Ramchunder, the Assistant Engineer in charge of the work, and carved on the spot out of Porebunder stone, are very accurate representations of the peculiar types of face and dress which are noticeable amongst many of the numerous castes included in the native communities of the Bombay Presidency. From the top of the octagon the cupola gracefully rises about 52 ft. to a point, on which is fixed a large round ball. The original plan contemplated a crowning feature of ornamental iron work, but this has been dispensed with. The library was estimated at Rs. 2,80,748; the tower at Rs. 2,17,345; and the total cost of the building, Rs. 5,47,703, has been more than covered by Mr. Premchund Roychund's gift in 1864-65, of four lakhs, and the interest thereon.

The complete inscription on the tablet in the University Library, relating to the construction of the tower, is as follows:—

"The University Library and Rajabai Tower was erected from design by—

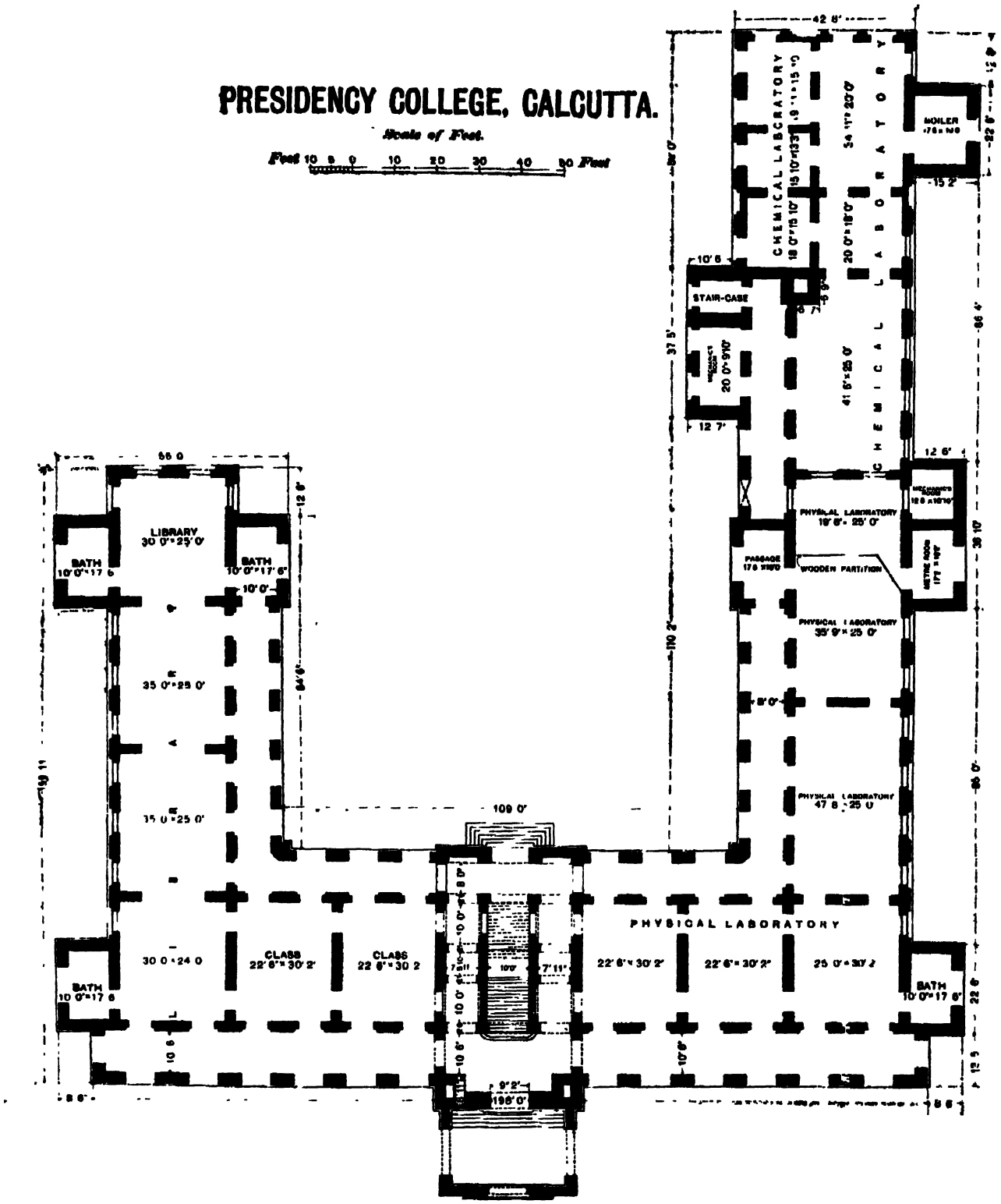
Sir Gilbert Scott, R.A., F.S.A., F.R.I.A., and sanctioned by the Government of Bombay on the 16th January 1869.

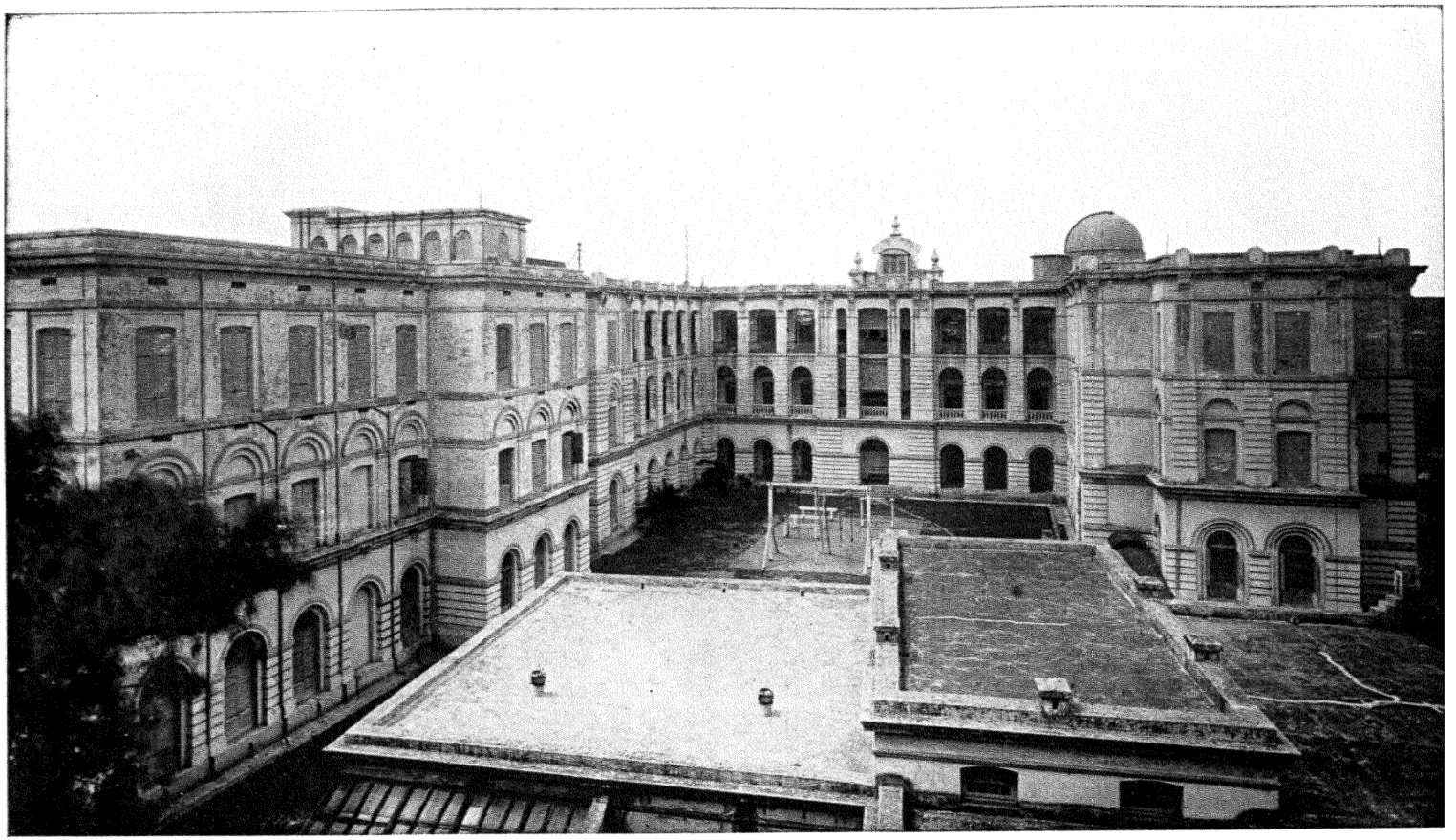
The work was commenced on the 1st March 1869, His Excellency the Right Honourable Sir Seymour Vesey Fitzgerald, G.C.S.I., Chancellor; Rev. John Wilson, F.R.S., Vice-Chancellor. The work was completed in November 1878, His Excellency the Honourable Sir Richard Temple, Bart. G.C.S.I., Chancellor; the Honourable James Gibbs, C.S., F.R.G.S., Vice-Chancellor. The work was carried out under the immediate orders of Lieutenant-Colonel J. A. Fuller, R.E., from March 1869 to November 1871; J. H. E. Hart, M. Inst., C.E., from May 1871 to November 1872; Lieutenant-Colonel J. A. Fuller, R.E., from December 1872 to November 1878; Rao Bahadur Muckoond Ramchunder being Assistant Engineer in charge. The entire cost of the building, together with the clock and chimes, was contributed by Mr. Premchund Roychund, J.P." (From Maclean's "Guide to Bombay."

PRESIDENCY COLLEGE, CALCUTTA.

Scale of Feet.

Feet 10 5 0 10 20 30 40 50 Feet





PRESIDENCY COLLEGE, CALCUTTA.

The Presidency College, Calcutta.

This has been developed from the old Hindu College founded by Indian liberality in 1816 and so reorganised in 1853 that the senior division was thrown open to students of all races, castes, and creeds under the title of the Presidency College, and under the management of the Council of Education, while the junior division was retained as the Hindu school, also under the management of the Council of Education, but with its exclusive character recognised and guaranteed by Government. The new college was at first housed in the western wing of the old Hindu College buildings but rapid growth soon rendered these premises insufficient, and the present building was erected during the Lieutenant-Governorship of Sir George Campbell, the foundation stone being laid in 1872, and the college opened in 1874 by Lord Northbrook. At various times the introduction of new subjects, and new theories of educational requirements, have led to additions and alterations, and at the present time preparations are being made for the erection of large additional laboratories.

The building is a three storeyed block, facing south, at right angles to College Street, and with a wing, also three storeyed, running north from each extremity; it consequently forms three sides of a square, the fourth side being completed by a one storeyed physical laboratory, and the enclosure being occupied by two recently erected one storeyed zinc buildings of a temporary nature, to serve as additional laboratories for chemistry and physiology. The building is everywhere one room deep: on the inner side a verandah on each floor runs the whole length of the main block and wings, on the outer side the main block has a verandah on each floor, but the wings have none. The verandahs are wide and of stone; they are supported by masonry pillars, which add greatly to the appearance of the college, though it is so hemmed in by its surroundings as seldom to strike the eye of the passer-by. In the same compound about 30 yards south of the college is the Hare School, also with its left flank on College Street.

Communication between the floors is by a wide stone staircase in the centre of the main block; there is also a narrow iron spiral staircase at the northern extremity of the east wing. Almost the whole of this wing together with the middle floor of the west wing and all the additional buildings, is given up to science, chemistry, physics, geology, and physiology. The rooms for the Arts classes occupy the remainder of the middle floor, which contains also the principal's room, the office, the record room and the professors' common room; while the ground floor finds space for the library of about 30,000 volumes, and for the students' common room, which is no larger than an ordinary class room and certainly is too small for its purpose. The college grounds contain no space or convenience for recreation, and the building itself offers no convenience for general college meetings, except that three class rooms on the top floor can by great labour and inconvenience in moving wooden partitions be thrown into one hall, but of ill-shape and poor acoustic properties. The principal's room is used as a council room for sitting of the college council, while general college meetings have once or twice recently been held by special permission in the neighbouring University Institute.

It will thus be seen that increased accommodation is greatly needed. This is due in part to the development of the science side of the work, and in part to the great increase in the number of students generally. By recent orders the limit has been set down as 650 (at present the numbers are just over 700); but even so it is difficult to find mere class room accommodation; and better facilities for private reading and corporate life are being zealously discussed, but would seem at the best to be unattainable for many years to come. In spite of the disproportionate part of the buildings allotted to class rooms and laboratories for science subjects, the laboratories, though well-equipped, are overcrowded, while the number of rooms reserved for teaching in the Arts subjects is unduly small, and there are but three small private rooms in which students can attempt any reading apart from lectures, or professors interview their pupils and develop anything

of a tutorial system. One room is reserved as a seminar in philosophy and here students are enabled to read for themselves, to investigate subjects of interest by class debates, and to come into close touch with their professors; but the extension of this system is rendered impossible for the present through lack of rooms.

The same compound contains the Hare School and the Presidency College, the former Hare School building being now a part of the physics laboratories. The small part of the compound not occupied by buildings, that, namely, between the college and the school, is used by the school boys as a playground. The compound was bounded on the west by a small busti which is now in process of removal to make room for the laboratory extension, and is surrounded by a low wall and fence which offer no obstacle to trespassers. There are two gates of entry, one for the Hare School, one for the college.

Instruction is given in all the recognised Arts and Science subjects; also, by recent orders, in Bengali and Hindi. The engineering department was closed on the establishment of the Sibpur College in 1880, and the law department in 1879.

The building is well ventilated; its south aspect, wide verandahs, wide doors, and abundant fans, afford a measure of comfort in the hottest weather, but its proximity to a noisy thoroughfare which is also a tramway route is a serious inconvenience. The light generally is good, but on the ground floor it is unsatisfactory, and this defect has been intensified by the erections in the inner compound. The library is a large room on the ground floor, running the length of the west wing; in it are a few portraits and memorials of distinguished educators and other benefactors both English and Indian.

The Eden Hindu Hostel, Calcutta.

With the exception of a temporary effort more than sixty years ago, nothing was done for the convenience of mufassal students in Calcutta, until in the eighties, at the instance of the Lieutenant-Governor and a few prominent Indian gentlemen, public subscriptions were invited for the building of a hostel. Eighty thousand rupees were contributed within a short time, the Raja of Mahishadal leading the way with a gift of thirty thousand; and the Eden Hindu Hostel was built in Peary Charan Sarkar's Street, the foundation stone being laid by Sir Stuart Bayley. A three storeyed block has since been added by Government. As the hostel was built at public cost, 40 students from colleges, other than the Presidency College, were at first admitted. But of late the privilege has been withdrawn by arrangement, and the hostel is now the residential annexe of the Presidency College, in charge of the principal, who is assisted by a committee of wardens chosen from among the college professors. The hostel superintendent, who has his quarters in the buildings, is also one of the professors.

The building is on the south side of Peary Charan Sarkar's Street and a few minutes' walk from the college. Directly north is the bustee recently acquired for the college laboratory extension; to the east is a piece of ground recently acquired and cleared by the University, and adjoining the Senate House; to the south is a hostel attached to the Medical College; to the west is a residential quarter and a garden owned by the Public Works Department.

The hostel is built on the four sides of a grass quadrangle, whose dimensions are approximately 40 yds. by 60 yds.; this is used for games, and at times for dramatic performances or other assemblies. The quadrangle is clear of buildings, except in the south-west corner where a single storeyed dining hall has been newly built.

The illustration shows the ground plan of the north and west sides.

Of the four sides, the north, which is the front, the east, which is the new block built by Government, and the north half of the west, are residential quarters: the south half of the west wing is occupied by dining rooms and kitchens: the west half of the south side is occupied by a dining hall, hospital, and servants' quarters, the rest being taken up with sanitary conveniences. Thus buildings occupy $3\frac{1}{2}$ and residential buildings $2\frac{1}{2}$ of the four sides. The east wing is three storeyed, the rest of the buildings two storeyed.

The only entrance is the gate in the north block. The ground floor is everywhere raised by a masonry plinth of about 3 feet in height. Each floor has a wide verandah running the whole length of its inner side, and a covered way connects the south corner of the east block with the small south block. Communication between the floors is by staircases in the east and west wings.

In the design of the residential quarters two principles are involved. The older portions of the buildings contain no single rooms, but only rooms for the joint occupation of two, three, or four students. The new block contains many joint rooms; but half of each of its floors consists of two large rooms, subdivided by wooden partitions 8 feet high, into a number of small rooms for single occupation. These rooms which number 24 on each of the three floors, have certain disadvantages of light and ventilation, but they are nevertheless the most popular rooms of all. They are arranged on each side of a narrow central corridor; those on the inner side consequently open on to the verandah.

The number of students' rooms is 153. Their dimensions vary. The single rooms already referred to have floor spaces 98·3 sq. ft. and height 13·3 ft.; of the other rooms on the same wing $253\frac{1}{2}$ by $13\frac{1}{2}$ may be regarded as typical measurements. In the north block the average measurements are, on the ground floor 353 by $14\frac{1}{2}$, on the upper floor 340 by 16. There are eight dining rooms, reserved with one exception for Brahmins, Kayasthas, and Vaidyas

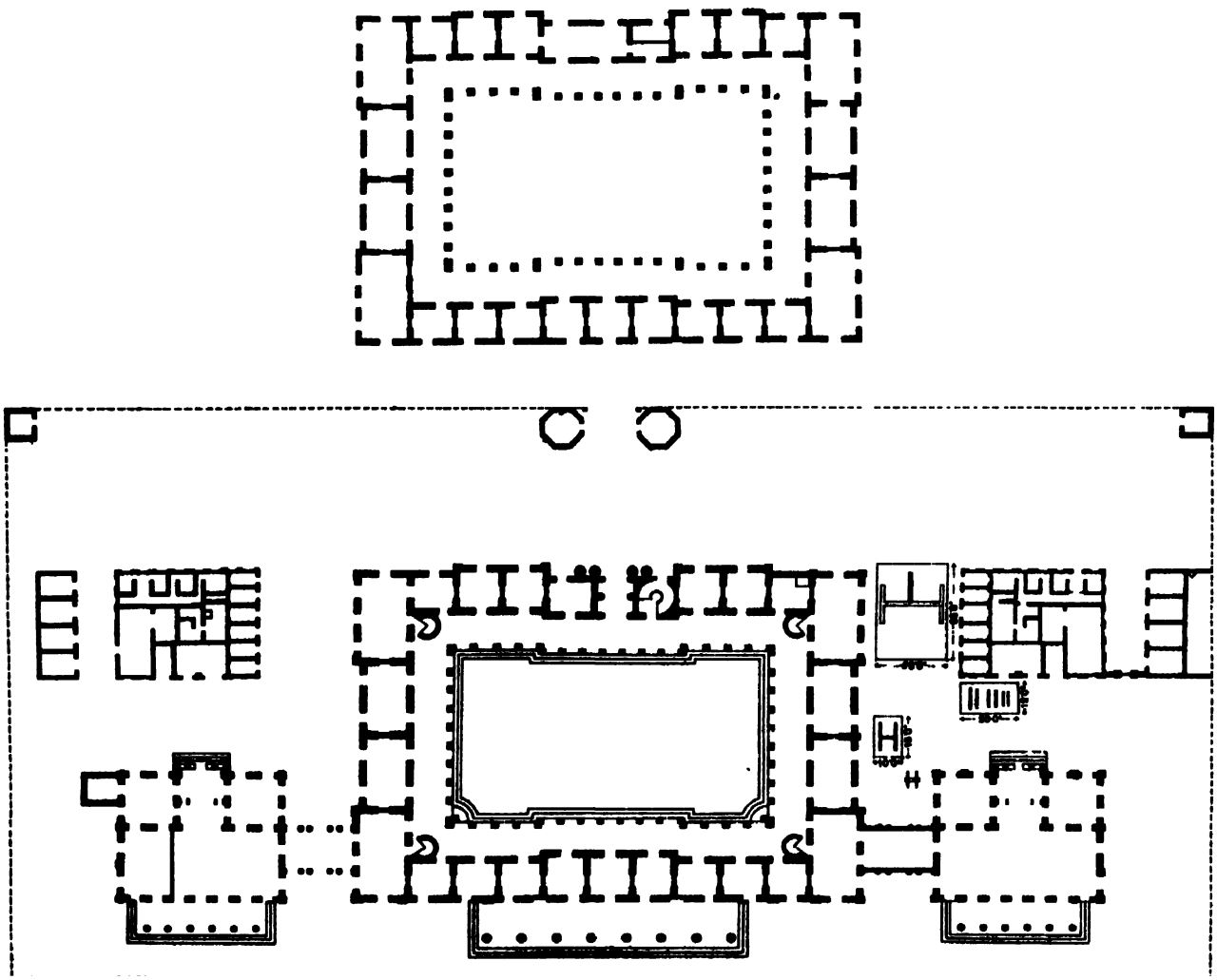
respectively. They vary in size: 47 by 16 by 14; 30 by 20 by 14½; 29 by 20 by 16; 41½ by 17 by 16 ft. are some of the measurements.

The accommodation is for 262 students, a superintendent and an assistant superintendent. The internal organization is by wards, of which there are five: the three floors of the east block, the ground and upper floors of the rest of the building. Each ward is under the charge of a visiting warden: matters of routine are attended to by a ward prefect, who is chosen from among the residents of the ward, and is granted certain privileges. Ward meetings are held either in the small common room in the north corner of the ground floor of the east block, or on one of the wide verandahs; other general meetings are held in the open quadrangle.

The building is of red brick and has no pretensions to architectural distinction. Being some little distance from the main thoroughfare, it enjoys a quietness denied to the colleges in the neighbourhood, and the disappearance of the neighbouring bustee promises increased comfort and healthiness.

CALCUTTA MADRASA.

Scale of feet.



Calcutta Madrasah.

The institution was founded by Warren Hastings in 1781 with a view of enabling Muhammadans of Bengal to acquire such knowledge of Arabic Literature and Law as would qualify them for the Judicial Department. The college is under the control of the Director of Public Instruction of Bengal. It consists of three departments, *viz.*, the Arabic department, the college department and the Anglo-Persian department.

In the Arabic department hadis, tafsir, history, logic, rhetoric and Muhammadan Law are taught.

The college department is a second grade college and teaches up to the intermediate standard. For teaching purposes it has been amalgamated with the Presidency College, the Madrasah students attending the former college for their lectures.

The Anglo-Persian department is a collegiate school and teaches up to the Matriculation standard.

The college building, which is antiquated in style, has two storeys. It covers an area of 6 bighas 5 cottahs 11 chittacks 9 sq. ft., of which 2 bighas 6 cottahs 14 chittacks 40 sq. ft. are in the occupation of the college. There is a spacious quadrangle inside the building, encircled by wide verandahs on four sides. There are also two wings attached to the main building, one on the eastern and the other on the western side. The east wing is used for class purposes and the west wing is occupied by the Moslem institute which is a club for Muhammadan graduates and undergraduates. It contains a large commodious hall and two rooms, and is fitted with electric light. There is also a library attached to this club. A quarterly literary magazine is published by the managing committee.

There are altogether 50 rooms, all well ventilated. The periodical examinations are conducted in the eastern wing and the verandahs.

The library which comprises rooms of the total dimensions of about 82 ft. by 14 ft., contains about 7,000 volumes including a valuable collection of Arabic and Persian manuscripts.

The sanitary arrangements of the building are good.

There is an open air gymnasium on the eastern part of the outer quadrangle.

The college, besides having a number of outhouses for servants' quarters, contains a hospital.

Elliot Madrasah Hostel, Calcutta.

The Elliot Madrasah Hostel is situated in Wellesley Square north, just opposite the Calcutta Madrasah. It is a three storeyed building, the foundation stone of which was laid in the year 1895, and it was named after Sir Charles Elliot, the then Lieutenant-Governor of Bengal, by whose efforts the sanction for this Muhammadan institution was obtained from Government.

The main building is rectangular measuring 112 ft. from south to north and 101 ft. from west to east. The chief parts of it consist of two wings stretching from south to north, joined together at the southern end by a block running from east to west. Thus the building has only three sides, *viz.*, the southern middle block, and the eastern and the western wings. At the northern end there is a small grass plot 95 ft. by 57 ft. used as a tennis court by the boarders. The main entrance is on the southern side, and in front of it there is a triangular plot of land. The building contains 41 rooms in all, of which 39 measure 16 ft. by 14 ft., and two measure 16 ft. by 8 ft. The former accommodate four boarders each, and of the latter, one on the 3rd storey accommodates two boarders, and the other, on the 2nd storey, is used as the visitors' room.

The boarders are supplied with bedsteads, book racks, almirahs, wall brackets for hanging clothes, tables, chairs and lights. The lamps have incandescent burners which are lit at sundown and are all extinguished at 11 o'clock each night.

Each room is well ventilated and furnished with sky-lights, clerestory windows, with swinging glass-shutters.

There are three kinds of accommodation. The rooms facing to the south which are six in number, are called 1st class, and occupants are charged at Rs. 3-8 per head; those facing northwards and numbering four are named 2nd class and occupants are charged at Rs. 3, while the intermediate ones numbering 12 are termed 3rd class with a rent of Rs. 2-8 per head.

The accommodation is for 134 students, 22 1st class, 16 2nd class, and 48 3rd class, and 48 free.

In 1908, according to the new regulations of the Calcutta University, the college students were separated from the school and Arabic students. The ground floor and the eastern and southern sides of the second storey are given to the latter; while the third storey and the western wing of the second storey are reserved for college students.

There is one dining room for the school department on the ground floor in the eastern wing, and two dining rooms for the college department on the same floor in the western wing.

The staircase for the college students runs directly from the ground to the third storey through the western wing of the second storey, and is situated on the southern end of the building just by the side of the gateway.

The stairs for the school students are situated within the building at the south-east corner and only runs from the first to the second storey. There is also a winding staircase situated in the south-east angle of the so-called quadrangle.

The superintendent's quarters and office, consisting of two rooms, a bath room, and a projecting verandah, are situated on the second storey, in the south-west corner of the building, and the assistant superintendent has been given a room on the third storey.

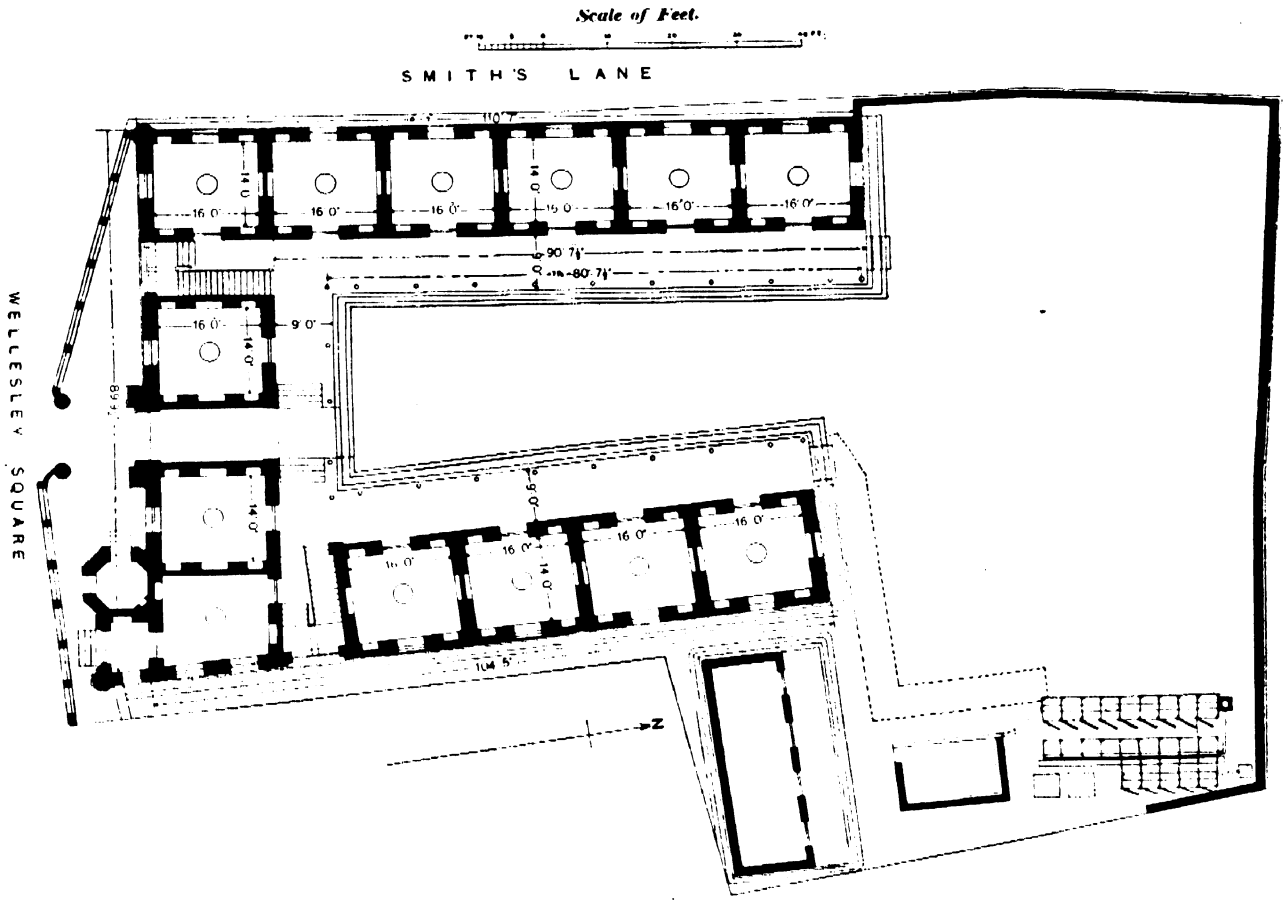
The western wing of the second storey is named after the late Nawab Bahadur Abdul Latif, C.I.E., the well-known leader of the Muhammadans in Calcutta.

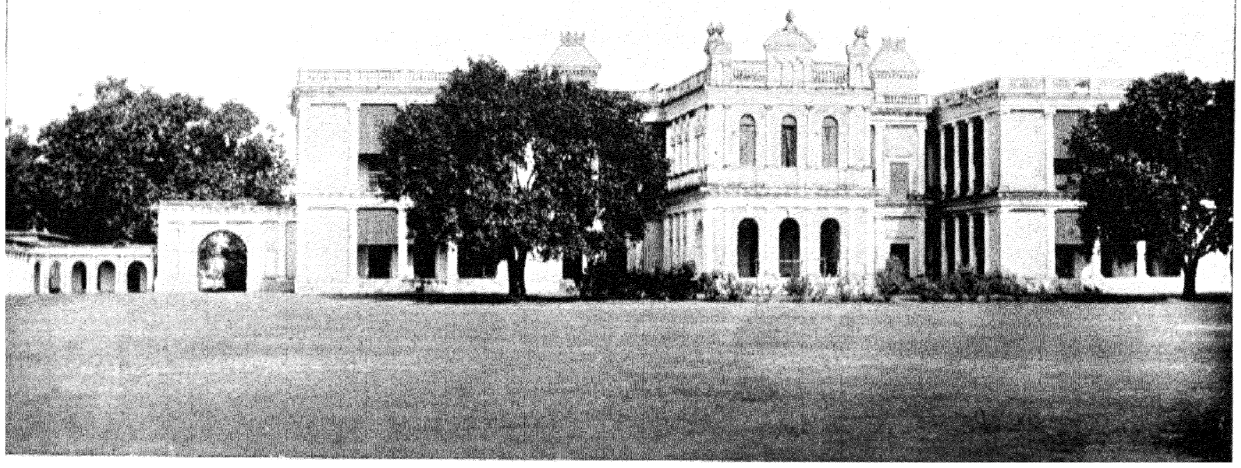
In front of the rooms there is a verandah 8 ft. 6 in. broad, supported on cast iron pillars and protected with iron railings. The roof is supported on steel girders and joists, and the floor is uniformly paved with concrete.

There is also a pump by which water can be raised as high as the third storey, and on every storey there are taps. The latrine and the bath sheds are situated on the north-east corner of the building in the same compound, and are walled and roofed with corrugated iron sheets.

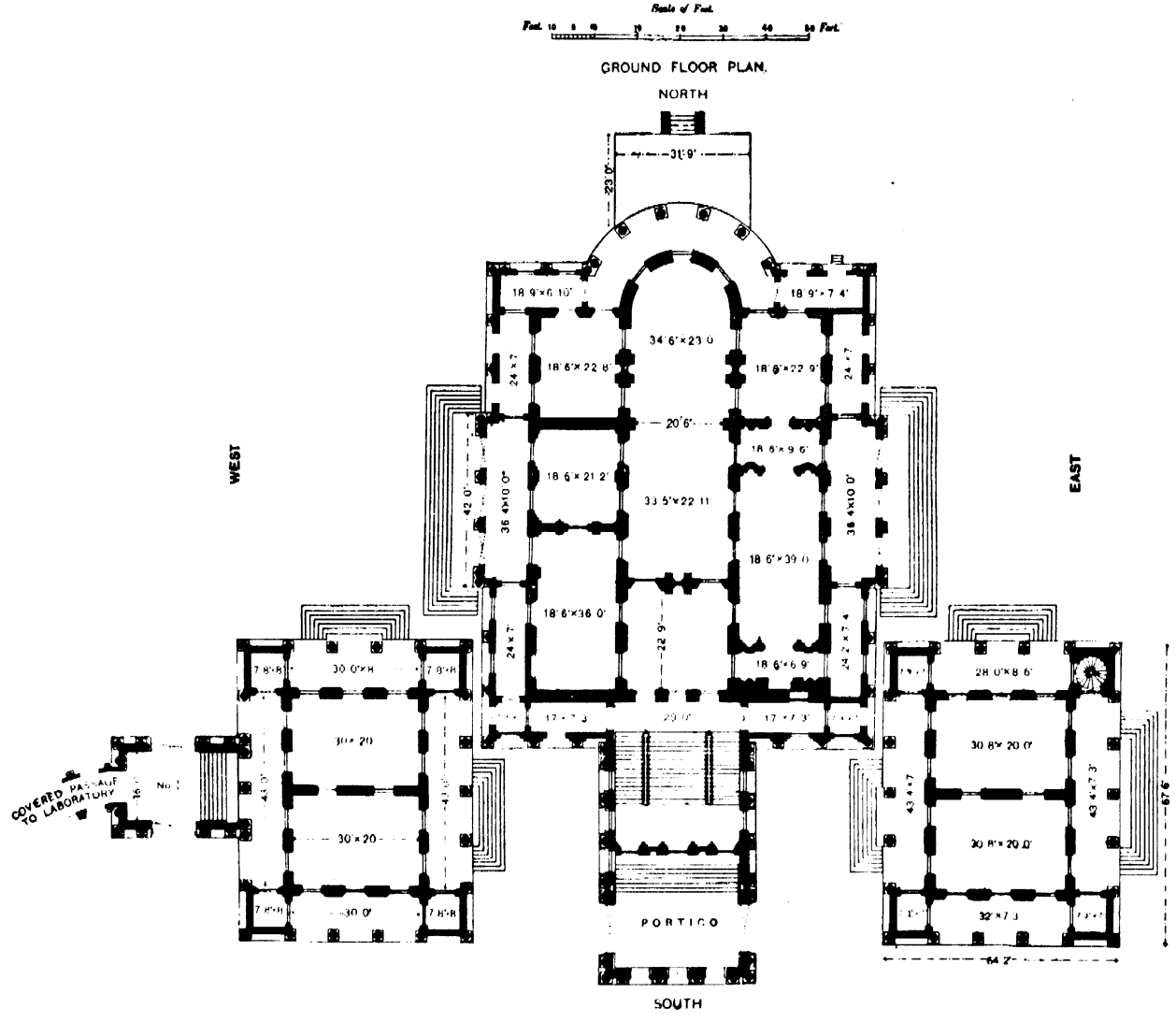
The kitchen is situated outside the hostel in the Madrasah compound. Numerous water taps are fitted at convenient places, and three reservoirs have been placed to supply water when the current is stopped.

ELLIOT MADRASA HOSTEL, CALCUTTA.





GOVERNMENT COLLEGE, PATNA.



The Patna College.

The college is situated on banks of the Ganges and commands from the riverside a fine view, the land towards the Ganges, one acre in extent, being laid out as a garden and a tennis court. In front of the building there is a large play-ground of eight acres which is divided up into a football field for the college and another for the collegiate school.

The main building of the Patna College consists of an old block, which is said to have been a Dutch factory, to which two wings were added in 1871 and 1880 respectively, and a portico in 1882. All these are two storeyed. Attached to these by a long covered passage is the science laboratory, which is one storeyed and was built in 1882.

The laboratory buildings contain a large lecture theatre (semi-circular rectangular portion 44 ft. 2 in. by 11 ft. 11 in., semi-circular portion 44 ft. 2 in. by 22 ft. 1 in.) with rising tiers and benches capable of holding about 150 students. The other rooms are fitted up for practical classes in chemistry and physics, but it is proposed to build two big laboratories for physics and chemistry which will serve for the Patna College, Bihar School of Engineering, and the Temple Medical School, on lands which have already been acquired by Government. The fittings of the present laboratory are therefore temporary. There are, however, water and gas laid on to the different rooms.

In the main building, the upper storey contains a large hall (98 ft. by 23 ft. 6 in.) which is used for holding one of the bigger classes but also serves the purpose of a Town Hall for Bankipore, where all public meetings are held, as there is no other hall equally large in the place.

The library has recently been provided with sky-lights and shelves built on to the walls leaving thus a sufficient space in the middle for the use of students who wish to read in the library.

There is a common room on one of the wings which is also used as a reading room and a meeting place for social gatherings, etc.

The other rooms are the portico room (29 ft. 8 in. by 26 ft.), three other rooms on the wings used as class rooms, professors' room (23 ft. 3 in. by 19 ft. 2 in.), principal's room (23 ft. 3 in. by 19 ft. 2 in.), office (21 ft. by 19 ft. 2 in.) and another class room (36 ft. by 19 ft.): a verandah runs all through the building facing every one of these rooms as well as of the back of the hall (facing the Ganges).

In the lower storey the hall and other rooms corresponding to those above are rather dark. They are used for the Patna Collegiate School. It is proposed however presently to remove the school to a different building and use the rooms so far as possible for tutorial and other classes of the college.

It has been proposed, and the proposal has received the sanction of Government, to extend the college by the addition of a Hindu and a Muhammadan hostel with superintendent's quarters and a gymnasium. These have already been built. There will also be quarters for the principal and one of the professors and a science building, for which lands have been acquired and plans and estimates sanctioned. Further, the whole of the foreshore of the Ganges adjoining the college and the various buildings proposed to be constructed has been acquired by Government, and it is therefore expected that in the course of a few years the Patna College will possess the best site and the most complete set of buildings in the occupation of any educational institutionn Bengal.

The Krishnagar College.

The college was founded by Government in 1845 and is affiliated to the Calcutta University up to the B. A. standard.

The town of Krishnagar is the headquarters of the Nadia district. It stands on the left bank of the river Jalangi, a branch of the Ganges and is connected with Calcutta by rail.

The college stands in a compound of over 100 bighas in extent. It is at some distance from the heart of the town and has a fine position. There are in the compound two buildings, one big, the other small, besides necessary out-offices. The scientific side of the college occupies the whole of the smaller building and some rooms in the bigger one.

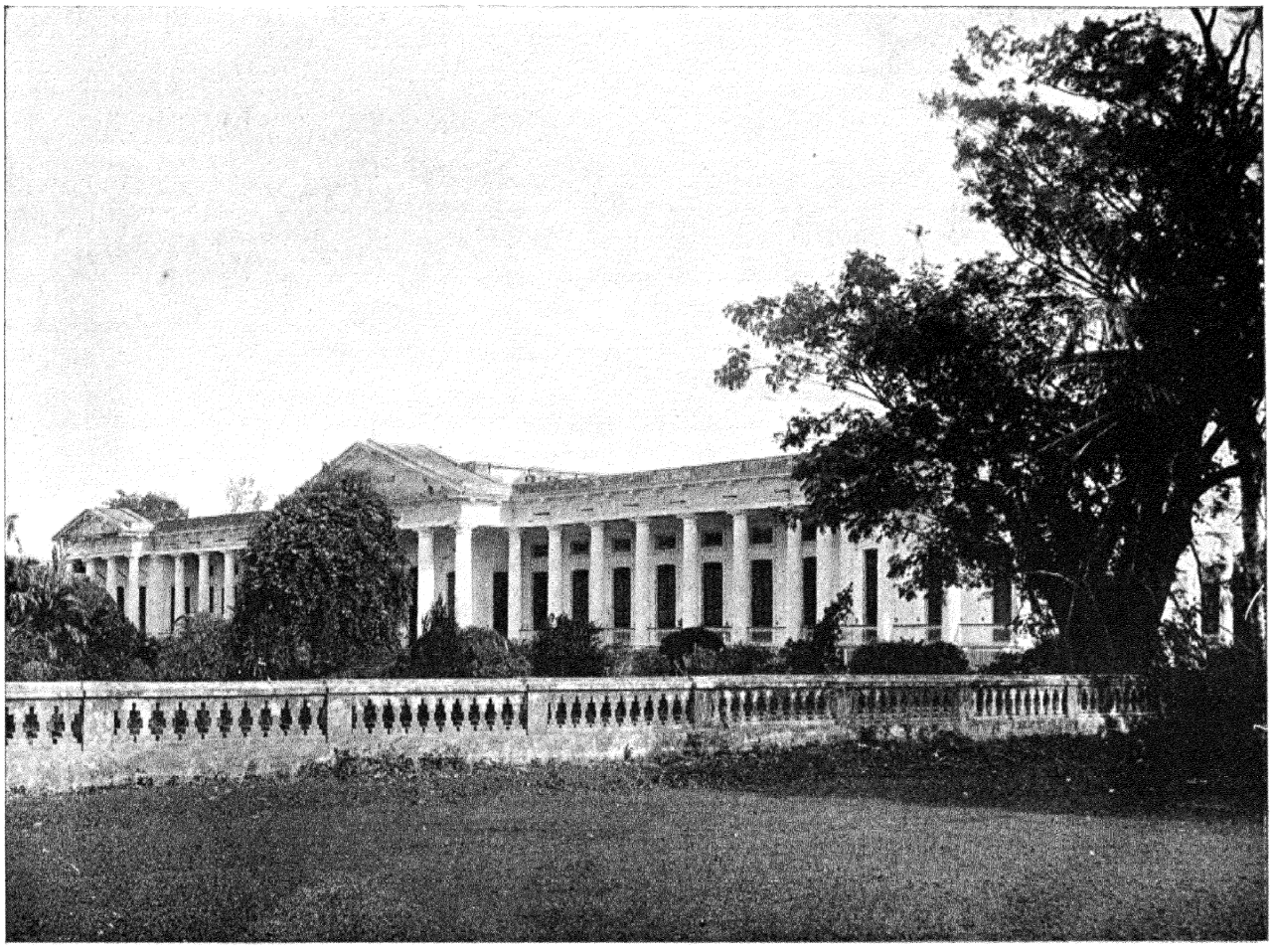
The main building is a handsome brick-built one standing on about 3 bighas of land. It was erected in 1856 at a cost of Rs. 66,876. It is single storeyed, facing south, for the most part two rooms deep, with a corridor running in the middle, verandahs on both sides and a portico at the back. It extends from east to west and has two wings with a hall in the centre. The hall is 53 ft. long, 31 ft. wide and 31 ft. high. The corridor is 8 ft. 10½ in. wide and 31 ft. in height. There are nine rooms on each wing with lavatories, etc. Of the 18 rooms 16 are 31 ft. long, 20 ft. wide and 22 ft. high, and two are 19 ft. 11 in. square with a height of 22 ft. Besides these there is a big room on the north of the hall, measuring 31 ft. by 31 ft. by 31 ft. The verandah in front is 16 ft. 6 in. and that at the back is of the same width. The portico is 40 ft. high from the ground level to the parapet; and the outer height of the corridor, the hall and the room on its north from ground level is 42 ft. The plinth is about 7 ft. in height. The columns in the verandahs are round with plain bases and capitals and supporting a plain architrave. The room on the north of the hall has asphalt flooring; the rest of the rooms have floors of dressed stone.

The ventilation of the rooms is satisfactory, and they are well lighted, mostly by glazed doors with venetian blinds. There are fanlights on the outside walls with corresponding ventilating openings on the corridor side.

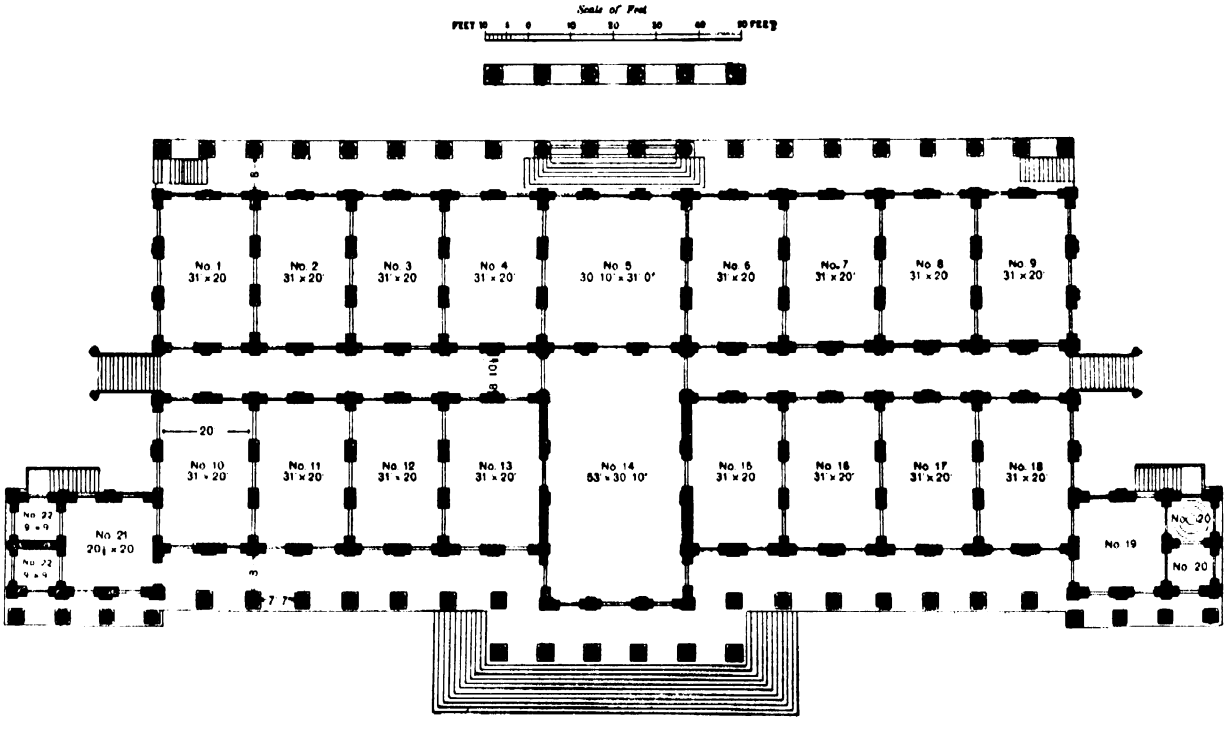
The library occupies the big room on the north of the hall and another room on the east wing adjoining it. It contains 9,962 volumes. The room adjoining the second library room is the students' common room. The principal's and the professors' room and the college office are in the main building, and the classes on the Arts side sit in it.

The smaller building also is single storeyed, facing south, with a small verandah in front. The plinth is 4 ft. high and its height from ground level to the parapet is 25 ft. 1 in. It contains six rooms besides the entrance. The rooms are well lighted, mostly by glazed doors with venetian blinds. Some of them have fanlights and two of them have ventilators. They all have brick-on-edge flooring. It is wholly occupied by the two laboratories. The physical laboratory consists of a lecture room 30 ft. long, 16 ft. wide and 17 ft. 4 in. high and an optical room measuring 18 ft. 4 in. by 10 ft. by 17 ft. 4 in. high. Two more rooms, one for a magnetic laboratory and the other to serve as a galvanometer and store room, are in course of construction. The chemical laboratory consists of a lecture theatre measuring 31 ft. by 20 ft. by 17 ft. 4 in. high, accommodating some 60 students, a preparation and store room measuring 18 ft. by 7 ft. by 17 ft. 4 in. high, a room for practical training of students (measuring 22 ft. by 19 ft. by 17 ft. 4 in. high) with separate tables for combustion analysis, water analysis, etc., and a balance room which is 20 ft. by 9 ft. 7 in. by 17 ft 4 in. high.

To satisfy the requirements of the new Regulations of the University, one small and six big rooms on the western wing of the main building have been set apart for the extension of the laboratories and for a workshop. Practical classes on an extensive scale for the students of physics and chemistry will occupy most of these rooms.



KRISNAGAR COLLEGE.



To the laboratories are attached a pumping house for supplying water and a Mansfield oil gas plant with a gas holder of about 300 cubic ft. capacity.

The laboratories are well stocked with apparatus and chemicals, some of the former being of very superior quality. They are worth about Rs. 30,000.

The college compound is surrounded by fencing. The front of the buildings is laid out as a garden with a low wall round it. There are a gymnasium and several football and cricket grounds and tennis courts in the compound.

Hooghly College.

The house now occupied by the college was built by General Perron in 1810. In 1837 it was purchased by the Committee of Public Instruction at a cost of Rs. 20,000 for the use of the institution known as Mohamed Mohsin's college.

The present building consists of seventeen rooms on the ground floor, two of which are very dark and not suitable for teaching purposes, and fifteen rooms on the first floor which is similar to the ground floor except that the hall (75 ft. by 35 ft.) occupies the space corresponding to the three central rooms of the ground floor. Some of the verandahs have also been enclosed and are used as class rooms. There is besides a small one-storeyed block of four rooms on the northern side of the main building. This is occupied by the chemical laboratory.

Of the rooms on the first floor seven only are in possession of the college, four being used as class rooms, one as the office, one as the principal's room and one as the students' common room. Three of the smaller classes are held in the college hall. An open verandah to the east of the hall serves a common room for the professors. On the ground floor two rooms are occupied by the library, which contains nearly ten thousand volumes, and three are utilised as the physical laboratory. The remaining rooms are occupied by the Hooghly Madrasah, the Hooghly Collegiate School and by the principal of the college who is in charge of all three institutions.

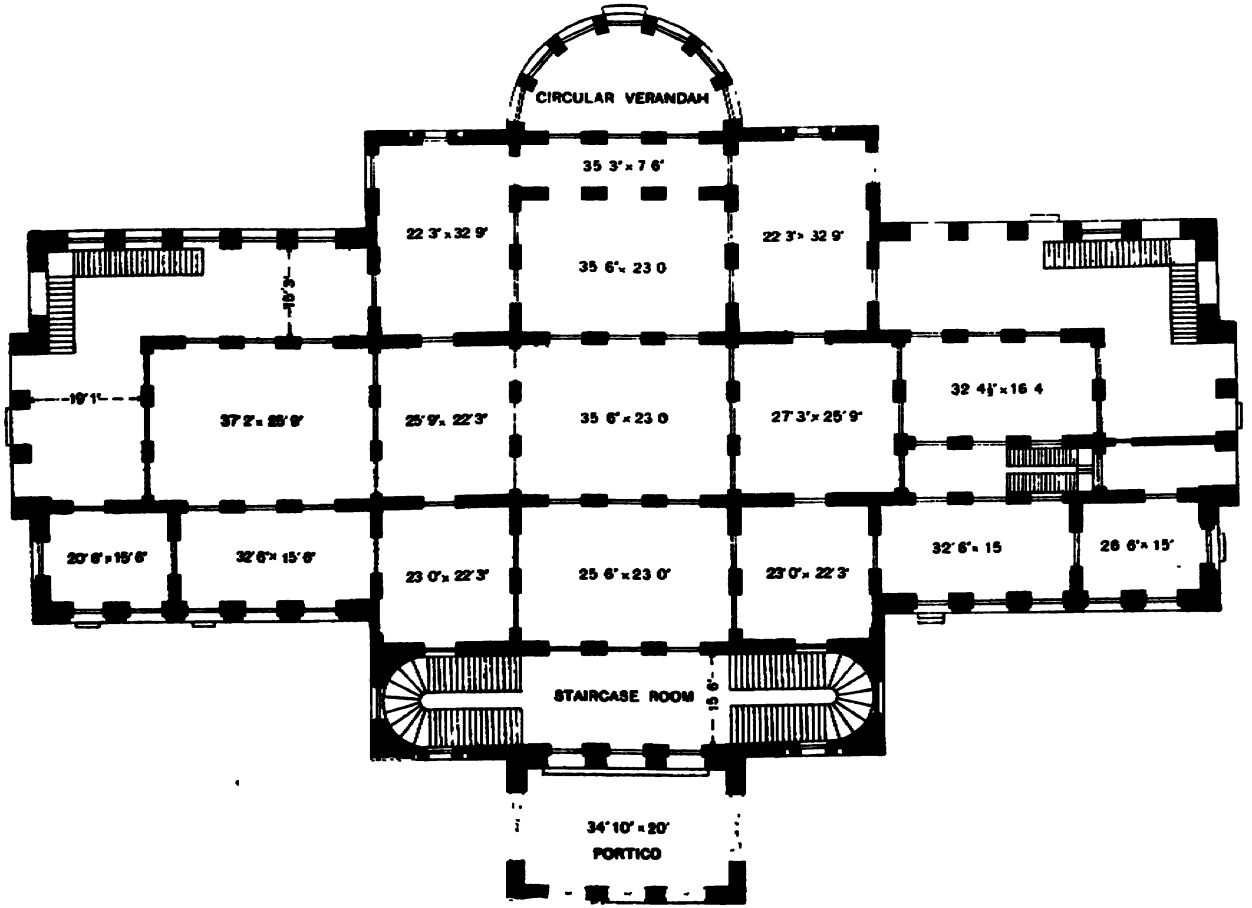
Generally speaking the accommodation is neither suitable nor adequate. For example, the hall in which three classes are held serves as a common passage not only for the college classes but also for those of the Madrasah; and many applications for admission have to be refused for want of room.

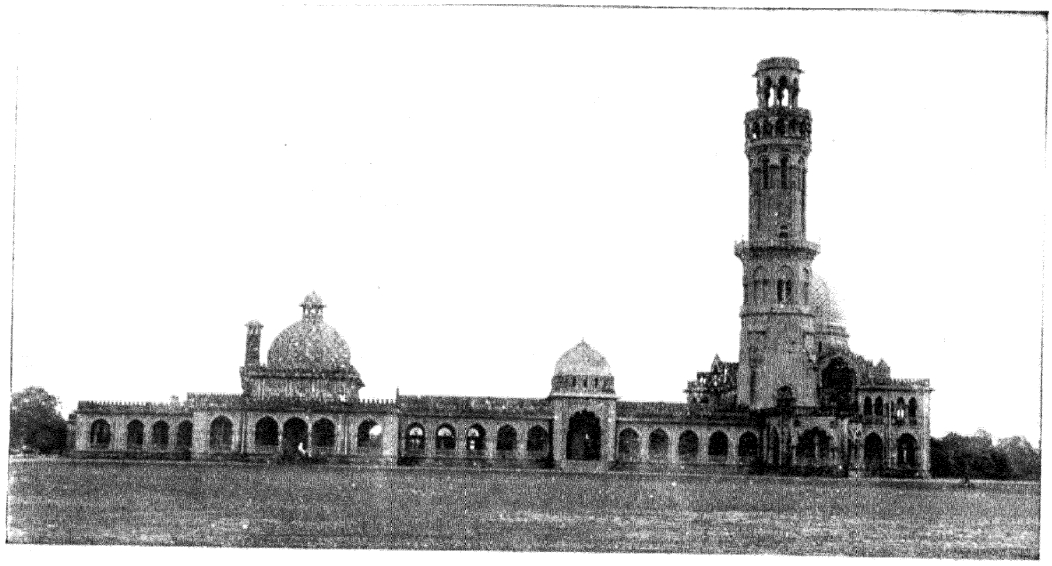
GOVERNMENT COLLEGE, HOOGHLY.

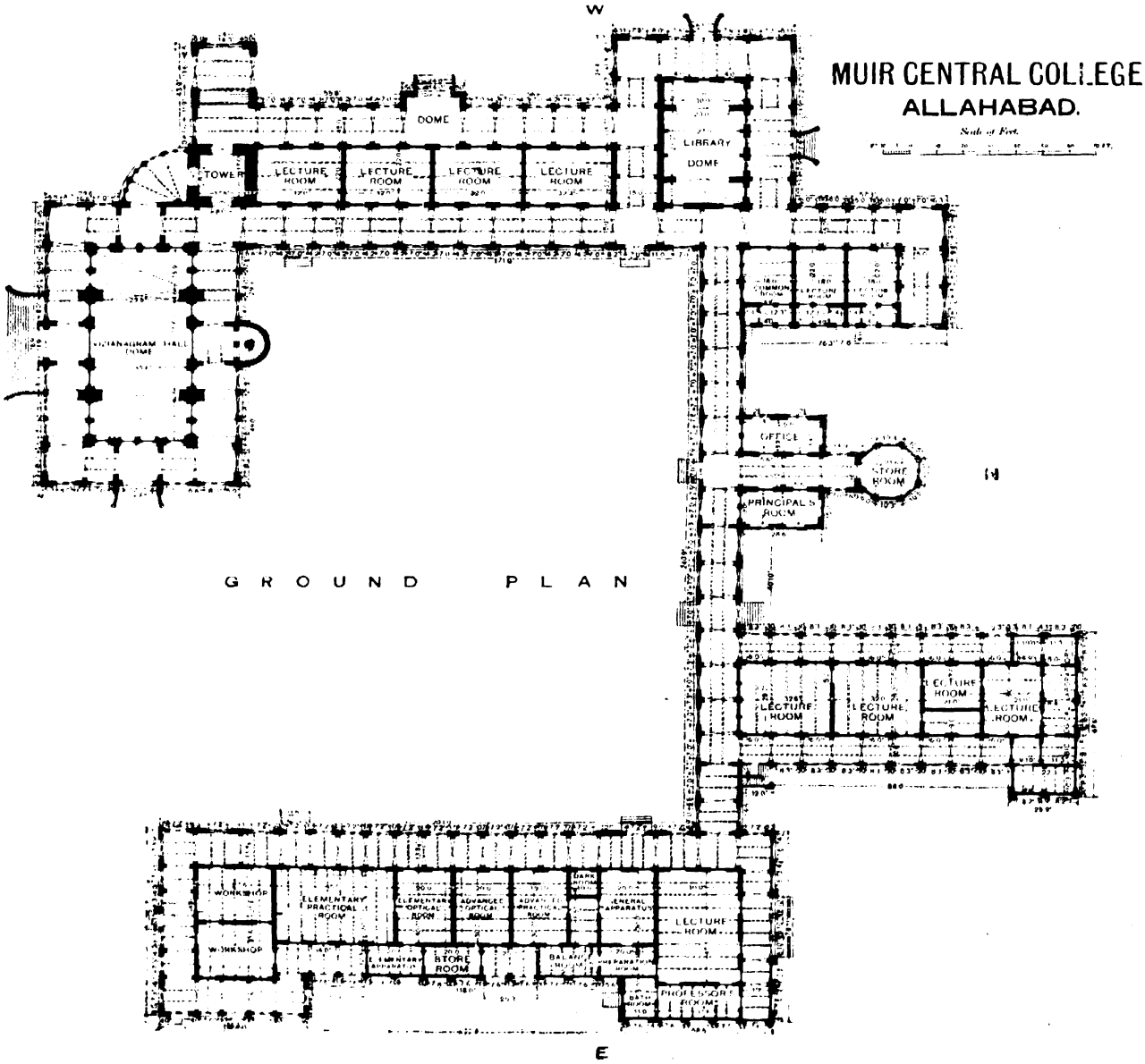
Scale of Feet.

Feet. 10 5 0 10 20 30 40 50 Feet.

GROUND FLOOR PLAN






W
MUIR CENTRAL COLLEGE
ALLAHABAD.
Scale of Feet.
DOME
LIBRARY
DOME
TOWER
LECTURE ROOM
LECTURE ROOM
LECTURE ROOM
LECTURE ROOM
VICTORIA HALL
OFFICE
STORE ROOM
PRINCIPAL'S ROOM
LECTURE ROOM
LECTURE ROOM
LECTURE ROOM
LECTURE ROOM
WORKSHOP
WORKSHOP
ELEMENTARY PRACTICAL ROOM
ELEMENTARY OPTICAL ROOM
ADVANCED OPTICAL ROOM
GENERAL APPARATUS
LECTURE ROOM
STORE ROOM
BALANCE
PROFESSORS ROOM
E

GROUND PLAN

Muir Central College, Allahabad.

The foundation stone of the Muir Central College was laid by His Excellency Lord Northbrook on December 9th, 1873, Sir William Muir being at the time Lieutenant-Governor. The college was opened by His Excellency Lord Dufferin in 1886 during the Lieutenant-Governorship of Sir Alfred Lyall. The total cost of the buildings at the time of the opening amounted to nine lakhs of rupees, the buildings then ready being the hall and the tower, the four lecture rooms and library forming the west side of the quadrangle, and five smaller rooms forming part of the north side opposite the hall. Since that date there have been successively added to the buildings a wing comprising three large lecture rooms and five smaller rooms, completing the north side of the quadrangle, added in 1887; a physical laboratory, completing the west side of the same, added in 1902; and a chemical laboratory of similar proportions to the physical laboratory, in a separate building parallel to the north wing, added in 1902. The cost of these additions has amounted to Rs. 2,22,856. To complete the quadrangle according to the original plan of the architect, Mr. (now Sir William) Emerson, a museum is required in the eastern half of the south side, balancing the hall in the western half. In a note on the design for the college, dated January 5th, 1872, Mr. Emerson wrote: "The question of omitting the museum is a question with which I, of course, have nothing to do, though I quite agree ..... in considering it very important; also from an art point of view it will be very much better to have a group of the hall, library, museum and tower than only the two and tower." Plans for a biological laboratory, separate from but continuing the line of the chemical laboratory, are ready, and funds for building them will, it is trusted, shortly be provided.

The main buildings form an unfinished quadrangle enclosing a court about 250 ft. long by 170 ft. broad, the greatest outside length being about 400 ft., and the greatest breadth about 350 ft. The tower is nearly 200 ft. high. The following are the dimensions of the chief portions of the college buildings:—hall, 82 ft. by 36 ft.; library, 55 ft. by 34 ft.; physical laboratory theatre, 45 ft. by 30 ft.; physical laboratory practical room, 45 ft. by 30 ft.; chemical laboratory theatre, 40 ft. by 30¾ ft.; chemical laboratory practical room, 55½ ft. by 30 ft.

With regard to the design of the building the architect in the above-mentioned note of January 5th, 1872, stated that in the general idea of the arcades or corridors he had followed the best Indian Saracenic of the provinces whilst slightly horse-shoeing the arches, and in the tower he had followed the feeling and idea of the Cairene style. The hall, tower, and library are built of stone throughout, and the main walls of the lecture rooms forming the quadrangle are of brick faced with stone. The stone chiefly used in the construction is yellow for the outside work and white for the inside. The yellow stone came from Mirzapur, and the white from Sheorajpur in the Allahabad District.

The buildings stand in the middle of an irregular plot of ground, of which the greatest length is about 700 yds. and the greatest breadth about 500 yds. There are in the grounds, or in the immediate neighbourhood, both college and university hostels providing accommodation for about 250 students.

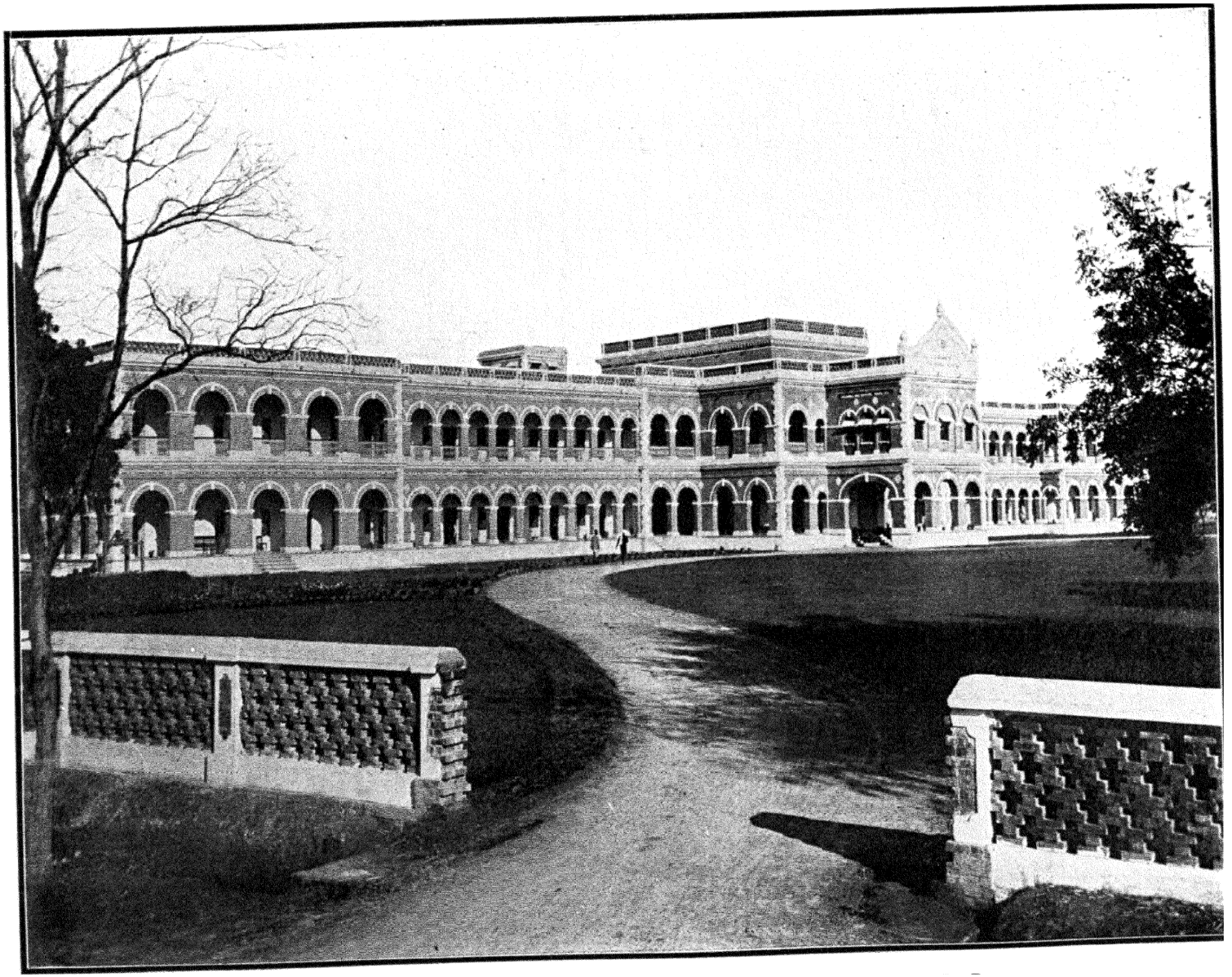
MacDonnell Hindu Boarding House, Allahabad.

This hostel is intended for the accommodation of Hindu students of the Muir Central and other colleges in Allahabad. Preference, however, is given to the students of the Muir Central College to which the majority of the students residing in the hostel usually belong, and which faces the hostel towards the east.

Ever since the opening of the Muir Central College, and more especially after the establishment of the local University in 1887, Allahabad has continued to attract an ever-increasing number of students who come to receive their education from all parts of the United Provinces, the Central Provinces, Behar and Rajputana. The absence of suitable accommodation for such students, where they may reside under adequate supervision and in healthy surroundings, had long been felt. To meet this want a few Hindu noblemen and gentlemen of the United Provinces decided to form themselves into an association with the object of collecting subscriptions for the hostels. The total amount of subscription promised up to date is Rs. 2,09,365, exclusive of the Government grant of Rs. 50,000; of this amount, including the Government grant of Rs. 50,000, the sum of Rs. 2,12,707 has already been collected. The society is continuing its work of obtaining additional promises of subscriptions and donations, and of collecting the money already promised.

Site of the hostel.—The hostel is centrally situated in the civil station of Allahabad. It faces the fine building of the Muir Central College. The Alfred Park and the Thornhill Library and Mayne Memorial are at its south-east corner. The Mayo Hall and the Roman Catholic Cathedral are within a few hundred yards of it, and the house intended for the official residence of the Principal, Muir Central College, adjoins the northern boundary of the hostel compound. The site is a dry and well-drained one and covers 11 acres 1 rood 5 poles.

At present the front block only of the hostel has been completed. It is a two storeyed building 378 ft. long and 119 ft. broad at the centre and 55 ft. at the ends. The Balrampore Hall is 60 ft. by 35 ft., and the ceiling is 36 ft. above the ground floor. The verandah on either side of the hall is 12 ft. broad with a spacious covered portico towards the east (24 ft. by 33 ft.). There is a spacious gallery running all round the hall, the entrance to which is from the second storey of the building. The provision for light and air is excellent and the acoustic properties of the hall good. On each side of the hall are two large rooms (28½ ft. by 18 ft.). One on the ground floor and the other above it on the first floor, which are intended for the residence of the superintendent, the office, and for holding tutorial classes to help students in any special subjects in which they may require assistance. Over the portico there is a large room 28 ft. by 24 ft. used at present as the hostel dispensary for keeping medicines and accommodating sick students of the hostel. The students' quarters run towards the north and the south of the hall. There are 28 rooms 14 ft. by 10 ft. and 4 rooms 14 ft. by 14 ft. on the ground floor and the same number of rooms on the first floor. The smaller rooms are intended to accommodate one student in each room and the larger rooms are meant to accommodate two students in each. Each room is provided with two almirahs in the walls in which the students can lock up their things and keep their books. Each student is supplied a chair, a bedstead and a set of wall pegs, and he purchases any additional furniture he may require for his use. In addition to this building there is a bungalow in the compound which is used at present to accommodate students. The space in front of the main building is laid out as an extensive lawn which is used as a recreation ground. The foundation stone of the building was laid by Sir Antony MacDonnell on 29th July 1901 (and with his permission the hostel was then named after him) and it was formally opened by Sir James Digges LaTouche on the 9th November 1906. The compound is enclosed on all sides by a brick wall with three gateways for entrance and exit. The building has been constructed throughout of first class bricks and mortar on broad foundations laid on a



THE MACDONNELL (HINDU) BOARDING HOUSE, ALLAHABAD.

well consolidated concrete basement, with *pucka* terraced roof resting on iron girders. A ten feet verandah runs all round the building. The names of donors of Rs. 1,000 and more are engraved on marble tablets affixed over the rooms.

Management of the hostel.—The hostel is licensed by the University of Allahabad under its regulations. The principal of the Muir Central College is the *ex-officio* visitor of the hostel. Each student residing in the hostel has to pay a fee of Rs. 2-8 per month besides the admission fee of Rs. 2. There are on an average one hundred students always living in the hostel.

The library contains at present very few books but it is proposed to purchase the necessary books of reference at once. The reading room is supplied with a few selected newspapers, magazines, and periodicals.

The Muir College students in the hostel pay Rs. 4 per annum to the games and sports fund of the college and join in the games and sports on the extensive grounds of the college which are situated across the road. Football, tennis and dumbbell exercises are carried on on the hostel grounds.

The average annual expenditure of the hostel is about Rs. 5,000. The major part of this is met by fees paid by the students and the income from the interest on the funded and unspent capital. The funded capital varies according as the promised donations. The funded capital at present is Rs. 50,000 invested in 3½ per cent. Government promissory notes besides a sum in the floating account to meet the current needs.

The demand for accommodation in the hostel is so great that a very large number of applications have to be refused every session. The students themselves and the parents keenly appreciate the advantages of a residence in the hostel which is frequently visited by the principal of the Muir Central College, who takes a keen interest in it and helps much in the maintenance of order and discipline.

Oxford and Cambridge Hostel, Allahabad.

The hostel was opened in July 1909 in temporary premises, and is an attempt to introduce into India the best features of an English college built upon the idea of a common corporate life under religious influences, such as the older foundations of Oxford and Cambridge University have. The posts of warden and sub-warden are filled by graduates of these two universities, appointed by the Church Missionary Society, and residence in the hostel is restricted with certain exceptions to students of the Allahabad University. The permanent site, close to Muir Central College and covering more than 15 acres of land, was purchased in September 1901, and the present buildings were completed in March 1903. The total cost of the fine quadrangle with rooms for fifty students, baths, lavatories, and lecture hall, amounted to Rs. 50,000, the greater part of which was raised by voluntary donations and subscriptions, though a liberal building grant was received from Government. The buildings are of first class *pucka* brick, except the partition walls which are *kutcha-pucka*.

The students' quarters, in three detached blocks of single storeyed buildings, one room deep, form three sides of a quadrangle, fenced at the open corners and on the fourth side, by an iron railing, thus leaving ample room for ventilation. In the midst of the iron railing on the fourth side is the main gateway, which is kept locked at night. In the railings as near to the four corners as the structure allows, are four small gateways which are also kept locked at night. A small porter's lodge containing one room (10 by 14 by 17 ft.) is situated by the south-east corner gate, through which alone entry is allowed after 8 P.M. in the winter and 9 P.M. in the summer. The warden's bungalow faces the open side of the quadrangle.

The plinth is 2 ft. 6 in. high and supports a pillared verandah (of 8 ft. 6 in. wide with arches 10 ft. wide), which runs along the front of each block on the side facing the quadrangle. The pillars are of *pucka* brick. The verandah has a sloping tiled roof from 9 ft. 8 in. to 6 ft. 8 in. in height, and in each archway are placed bars for the purpose of hanging clothes. In the centre of the main block facing east is the lecture hall, serving also the purpose of a library and common room, and capable of seating about 200 persons (38 ft. long, 27 ft. wide, 22 ft. high). It contains a library and is well supplied with English and Indian magazines and periodicals. The library has been much improved by a generous personal donation from His Excellency the late Viceroy Lord Curzon on the occasion of his visit to the hostel in March 1903.

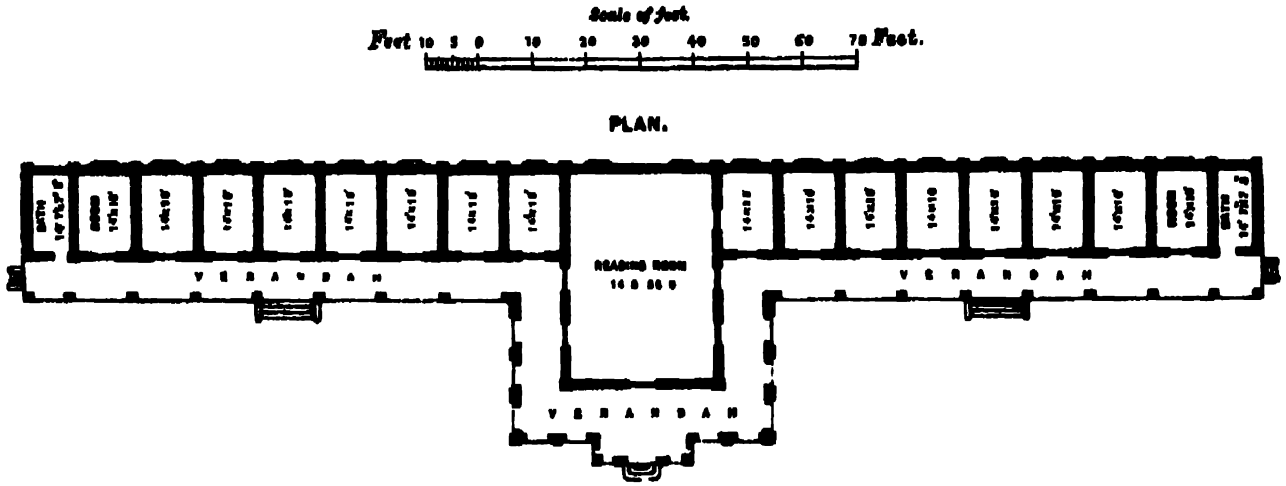
The remainder of the quadrangle consists of 50 rooms opening on to continuous verandahs and ventilated and lighted by a large barred window in the rear and a clerestory window facing the quadrangle above the verandah. Over the windows are iron shades. Each room is 10 by 14 by 17 ft. in size and accommodates one student. The main block with the lecture hall and rooms for 20 students is 227 ft. long by 18 ft. 3 in. wide (with the exception of the lecture hall which projects some 13 ft. into the quadrangle), while the two side blocks are 195 ft. long by 18 ft. 3 in. wide. The tiled roof slopes from 21 ft. 6 in. to 19 ft. in height.

The lecture hall in the main block and raised towers in the middle of the side blocks break the monotony of the lines of the roof.

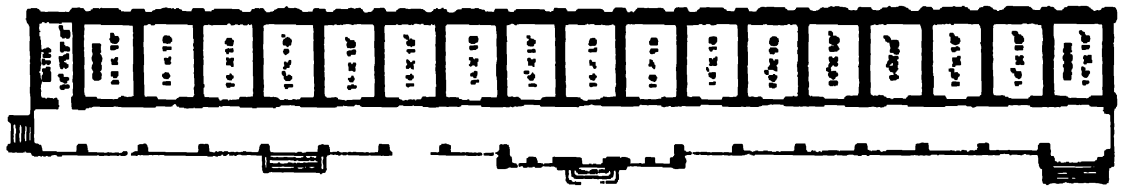
At the end of each block is a set of baths and lavatories with small night-latrines, in which municipal water is laid on as well as in certain other parts of the quadrangle and compound (see ground plan). The latrines are situated in a separate building some 60 ft. distant from the north-west gateway (see site plan). There is also a well in the compound which supplies water for swimming bath, gardens and lawns. Waste water is drained away partly into municipal drains and partly into a large open cess-pool at some distance from the hostel.

The interior of the quadrangle contains six tennis courts. Blocks of *kutcha* cook-houses, for individual or mess arrangement according to the caste and wishes of the students, stand at a distance of about 80 ft. from the south-east gateway of the quadrangle, but hidden from view by the students' quarters. The compound also contains football, cricket and hockey grounds,

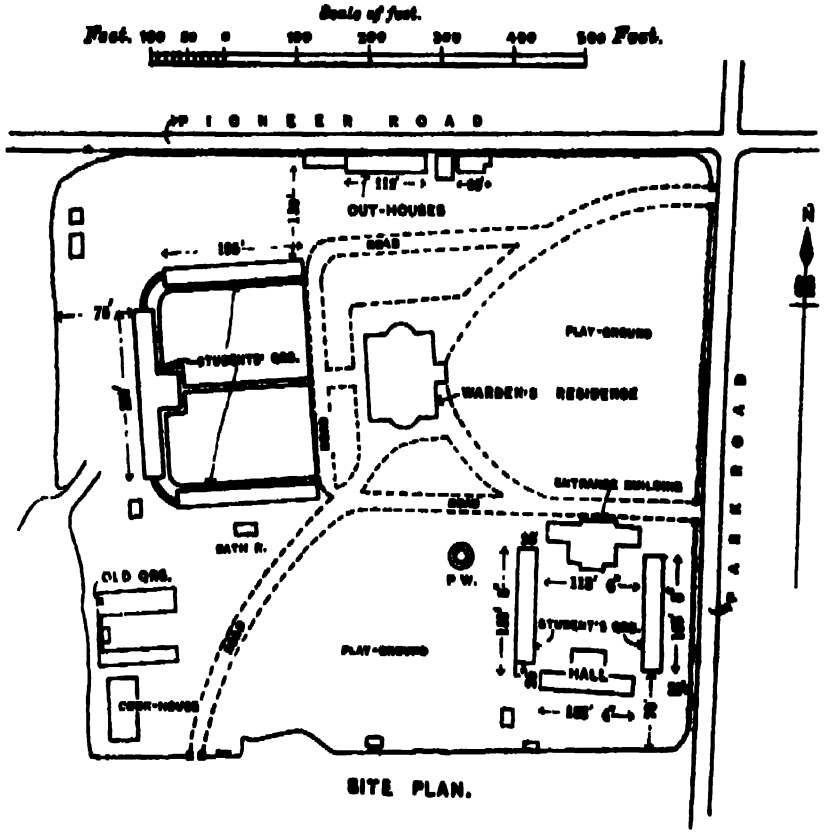
OXFORD AND CAMBRIDGE HOSTEL, ALLAHABAD.



MAIN BUILDING.



DUPLICATE SIDE BUILDINGS NORTH AND SOUTH.



SITE PLAN.

a swimming bath and a small open-air gymnasium. It is found that athletics and the common room are invaluable in promoting *esprit de corps* and a sense of corporate life.

The month's fee payable by each student is Rs. 2-8, in return for which he receives a single room with a bed, chair and table, cooking room, services of the hostel servants, *i.e.*, sweeper, and one Kahar to every nine students, medical attendance and the free use of the common room and hostel athletics—but not food nor cooking. The hostel is entirely self-supporting as regards establishment and maintenance charges.

Queen's College, Benares.

The Queen's College at Benares was commenced in 1840 and completed in 1852 at a cost of Rs. 3,60,000, of which Rs. 2,30,000 was subscribed by the leading nobility and gentry of Upper India and the balance Rs. 1,30,000 was found by the local Government. It was originally intended for holding classes for the advancement of only Sanskrit learning in Benares but subsequently English college classes were added to it. The building has since found accommodation for both a Sanskrit college and an English college, the classes of the former being held in the morning.

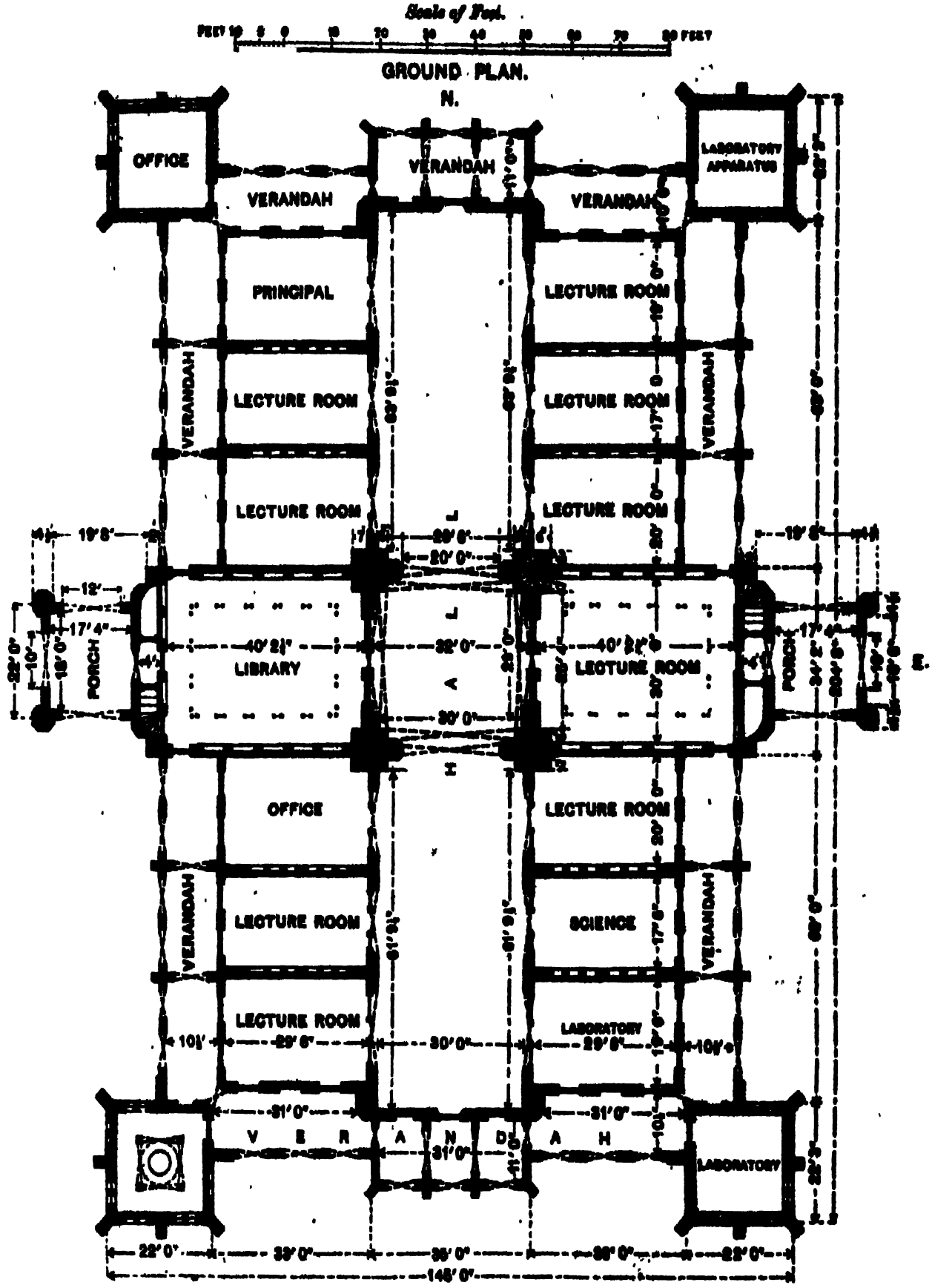
The structure occupies a good position in an extensive compound of more than 36 acres in area. On entering by the main gate to the south one has a clear view of the main façade of the building, unique in its style of architecture in this part of the country. In the eastern part of the compound but sufficiently away from the college building there are two comfortable residential houses for the accommodation of the principal of the college and the headmaster of the Queen's Collegiate School. The whole of the northern part of the compound measuring roughly 800 ft. by 800 ft. is laid out with fine lawns which are carefully kept up by the college authorities and provide spacious grounds for cricket, football, tennis, and other games. At the south-east corner of the lawns there is a small meteorological observatory fitted with necessary instruments which are observed every morning. Near the entrance to the playground about 75 yards from the main building there stands the ancient Gupta pillar which was found at a village called Fahladpur near Gazipur and was brought to Benares and erected in its present position by the order and at the expense of the Hon'ble James Thomason, then Lieutenant-Governor of the North-Western Provinces, in the year 1853. The remaining parts of the compound are laid out as gardens and lawns, and the front and sides are surrounded by Gothic enclosure walls with towers at the corners and a central gate.

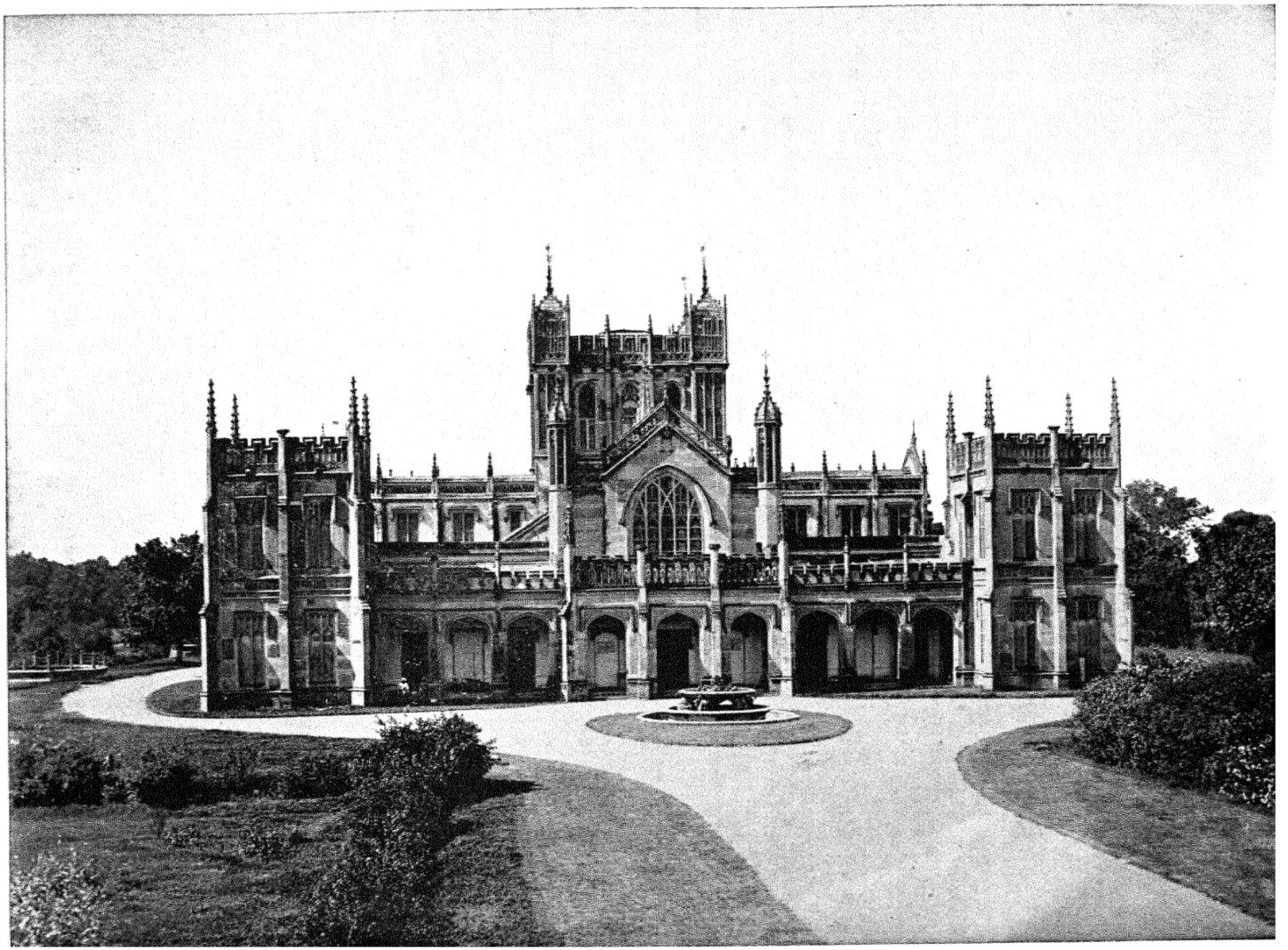
The college building was designed by Major Markham Kittoe and also constructed under his supervision in 1852. The structure is intended to be an example of English Gothic architecture of the perpendicular style. All the outer face work and features are in Mirzapur stone, bricks and lime forming the materials for the inner walls. The external walls are mostly panelled with tracery, profusely decorated with mouldings, strengthened by buttresses crowned with finials richly ornamented with crockets and finished with embattled and panelled parapets and canopies of ogee character, enriched with foliage typical of the style. Major Kittoe took particular care to have all features and mouldings correctly executed and went so far as to model most of them with his own hands.

The building is single storeyed and is rectangular in plan though the central features represent a cross. There is a tower in the centre, measuring 30 ft. by 29 ft. and 57 ft. in internal height, from which there run to the north and south two naves, each measuring 60 ft. by 30 ft. and 30 ft. in height, and to the east and west two transepts 40 ft. by 30 ft. and 32 ft. in height. This central tower and these naves and transepts form a cross on the plan. The rectangle is completed by four sets of class rooms, three in each set, parallel to the transepts and opening into the naves as shown on the plan. The whole is surrounded on the four sides by verandahs which are broken up by four square towers at the corners and two porches with vestibules at the outer ends of the two transepts. In front of the building which faces the south there is a large ornamental fountain in stone, which is fed from a tank concealed within the south-west tower, which also contains a well inside.

The main external features of the building are also the central tower and the two naves and transepts. The tower has a pent roof with high embattled parapets surmounted at the four corners by ornamental canopies and turrets. The naves and transepts too have pent roofs with boarded ceiling supported by hammer beam trusses and terminating in gables, and skilfully concealed from view by means of richly ornamented parapets. The clerestories of the tower, naves and transepts are perforated with a range of ornamental windows with coloured glass set in lead frames, and the large window with tracery in the south gable contains in coloured glass an early likeness of her late Majesty Queen Victoria.

QUEEN'S COLLEGE, BENARES.





QUEEN'S COLLEGE, BENARES.

The verandah openings have obtusely pointed arches enclosed in square hood mouldings above the crown, the spandrels thus formed being filled with floral designs. Above the hood moulding and below the cornice there runs a frieze all round the verandah walls, decorated with Sanskrit, Hindi and English inscriptions.

The simplicity of the interior presents a pleasing contrast to the high ornamentation of the exterior. The walls are constructed of bricks set in lime and plastered. The tower and transepts have wooden galleries running round the walls about half way up above the floor. The tower with the naves which are connected with the former by large arch openings forms the hall, which communicates with the transepts and the 12 class rooms through medium sized doors let into the partition walls, which go up to a height of only ten feet from the floor, the upper part forming the appearance of a gallery. The friezes above the lintels of doors round the great archways of the hall are embellished with Hindi and Persian didactic couplets, mainly from Tulsi Das and Sad'i.

The laboratories are provided with working benches fitted with gas and water pipe and requisite sinks for the students of practical chemistry. But the accommodation is considered to be limited. Indeed it has already been proposed to remodel the building now occupied by the lower classes of the collegiate school (which is situated at a distance of four minutes' walk from the college) and have it fitted with up-to-date scientific apparatus and appliances. There are two libraries for Sanskrit and English books respectively and the accommodation is hardly sufficient, many of the books being deposited in the galleries round the transepts. The Sanskrit books and manuscripts have become so numerous and important that a separate Sanskrit library, called "Princess of Wales Saraswati Bhawana" is now under construction at an estimated cost of Rs. 1,00,000. The necessary funds have been provided by the residents of Benares to commemorate the visit of Her Royal Highness the Princess of Wales to Benares in February 1906. The construction of a separate English library is also in contemplation.

The Central Hindu College, Benares.

The illustrations show the buildings at the beginning of 1908. The institution was founded in July 1898 and removed to its present site. As it is so young and still growing year by year, the buildings have been, and are being, continually added to.

The total area occupied is about 10 acres, of which about 6 are reserved for playgrounds and 4 are under buildings. For purposes of description these latter may be taken in separate blocks.

(1) The Sarasvati temple block is a quadrangle about 225 ft. square. Entering by the large stone gateway to the north, the student comes into an open space 220 ft. by 140 ft., in the middle of which rises a slender white marble temple dedicated to Sarasvati, the Goddess of learning. The temple stands about 25 ft. high on a granite plinth of about 5 ft.

Behind the temple is a very large platform, all in granite, 7 ft. high, 160 ft. long and 54 ft. broad. Then comes the double hall faced with scalloped stone arches and fluted stone pillars. This is 64 ft. by 36 ft. by 21 ft. high. At the two ends of the hall are rooms and galleries in three storeys. The hall is used for public functions, the daily prayer-gathering, anniversary and other meetings, lectures, examinations and the like. The galleries and the rooms on the lowest storey at the sides are occupied by the Managing Committee's offices, stores, and shorthand and typewriting classes. Those on the upper storeys are used by the Sanskrit pathsala. At the south-west corner of the quadrangle is a room, 30 ft. by 10 ft., which is occupied by the office of the Central Hindu College Magazine, and, corresponding to it at the south-east angle, is another which, with a carpenter's yard enclosed, is used for storing material and implements connected with building work and furniture-making.

Behind this main hall is a set of 12 rooms of different sizes surrounded on three sides by a verandah and the main staircase; 6 of these rooms are in two storeys. These rooms are used by the college classes, and include the principal's office, the professors' common room, the library and the beginnings of a museum. The verandah has a total running length of over 228 ft.

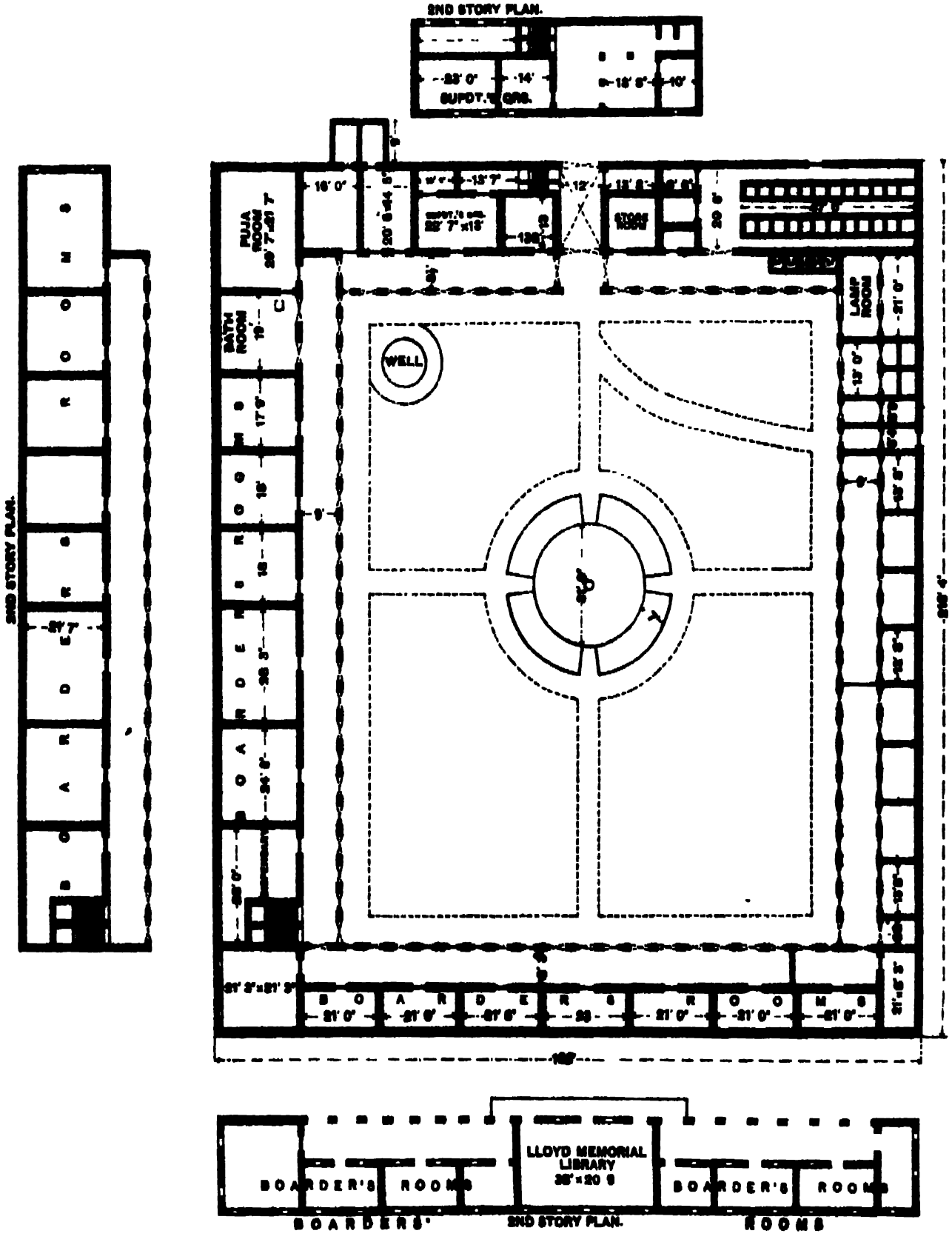
To the east of the above is the laboratory building, 220 ft. by 46 ft., divided into a number of rooms. Two of these are large halls 50 ft. by 25 ft. high devoted to practical work by students of chemistry and physics respectively. Two are lecture halls, 25 ft. by 25 ft., fitted with stepped galleries. There are twelve small rooms besides for separate research work. There is a gas making apparatus, an electric light installation, an oil engine, etc.

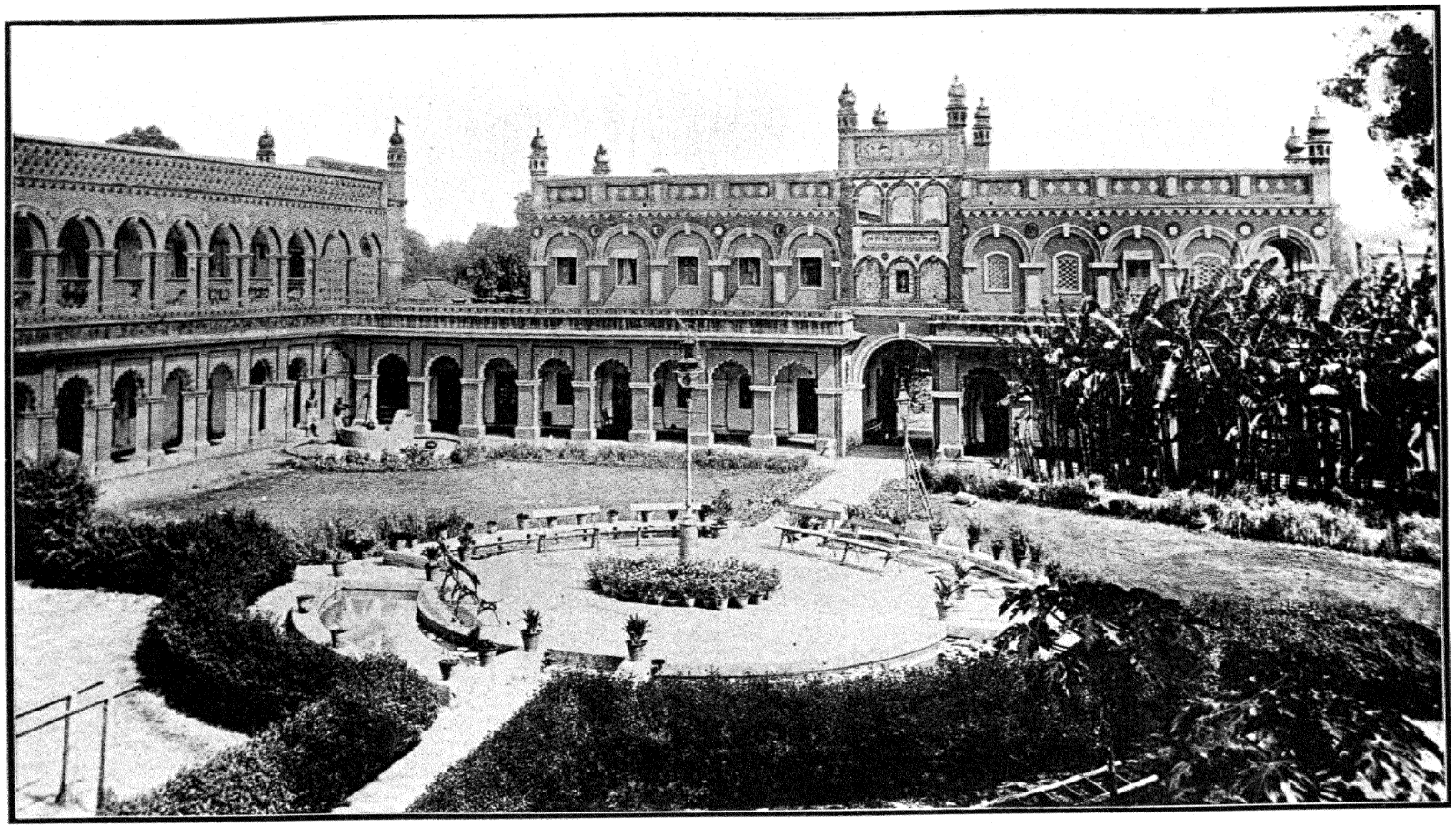
To the south-west is the separate school building in two storeys with verandahs on the east side, comprising one hall 70 ft. by 35 ft. used for the prayer-meetings, the examinations and such other functions, and 20 rooms occupied by the classes, the headmaster's office, the teachers' common room, the school laboratory and so forth. The hall is also used for extra classes and lessons by the music-master, the verandah for instructions by the clay modelling tutor, and by the drill instructors. At the back of the school building there is a tiled shed used as refreshment hall and book and stationery depôt. Another separate building is in course of construction to which the over-flowing lowest classes will be removed.

The boarding house occupies the complete quadrangle, 200 ft. square. A little more than half of it is two storeyed. Arch verandahs run all round the quadrangle. The open square is kept up as a grass lawn, with flower beds and water-tanks. The southern and western sides, which are two storeyed, contain the living rooms of the boarders and also a library and reading room, a prayer hall, a lavatory and a medicine room. These rooms, 84 in number, are of various sizes, the smallest being 10 ft. by 9 ft. and the largest are 40 ft. by 20 ft. About 120 boarders are accommodated in them. In the northern row, part of which is double storeyed, are the main gateway, the superintendent's family quarters, a sick room, store rooms and other necessary rooms. The eastern range contains four cook-rooms with dining galleries on three sides of each, assigned respectively, generally speaking, to the four main Hindu castes. Additional accommodation is urgently needed.

CENTRAL HINDU COLLEGE, BENARES.

Scale of Feet.





CENTRAL HINDU COLLEGE, BENARES.

At the distance of a few hundred yards from these buildings stand staff quarters containing four complete sets of bachelors' rooms, occupied by various members of the staff.

The playground covers about 6 acres, and can accommodate, for the purpose of daily practice, four teams at a time of football, cricket and hockey. There is also a temporary thatched shed used for instruction in indigenous systems of physical exercise such as wrestling, clubs, malkhamba and others.

A technical department for giving manual instruction in the working of simple, small, inexpensive machines connected with various manufacturers is very much needed and is under contemplation.

The institution is affiliated to the Allahabad University in the college department, and is under the Director of Public Instruction of the United Provinces Government in the school department. It is governed and managed by a Board of Trustees and a Managing Committee, and has been built up from and continues to be supported by the gifts of the public.

The climate of Benares is not ideal, but the college is situated at a fair distance from the town in open country. Only in one of the ten years of its existence has the boarding house had the misfortune to lose an inmate from disease.

The shade temperature varies from 28 in the winter nights to 115 in the summer days. The summer is the most trying time, but, as the college and the school and pathshala are closed in May and June, the worst part of the year is avoided for work. The winter is all that can be wanted for hard work. The rains bring fever now and then, but nothing beyond what is usual to most of the healthiest parts of India in that season.

The buildings are in all parts connected with the municipal water-works.

The buildings of the institution may be valued, roughly, at Rs. 2,66,000; the scientific apparatus at Rs. 25,000; the library, containing 8,000 volumes, at Rs. 25,000; and the furniture at Rs. 20,000.

The Muhammadan Anglo-Oriental College, Aligarh.

This college was founded by Sir Syed Ahmad Khan, K.C.S.I., for the education of his co-religionists on Western lines. The foundation stone was laid by Lord Lytton on January 8th, 1877. The present main buildings form the sides of two large adjoining quadrangles, of which the side common to both runs from the mosque on the west to the science laboratories on the east, and the centre of the whole block of buildings is the Strachey Hall.

The large scale plan shows the portion forming the central portion and containing the main college rooms, while the outer sides of the quadrangle consists chiefly of boarding houses and quarters for the staff.

The elevation given in the photograph shows the mosque and part of the central block. This block is built of red brick and Agra stone, the other buildings being of red brick, except the Syed Mahmud court, Morison court and school class rooms which are *kutcha*.

The Strachey Hall stands in the front of the main gate of the college courts. On either side is a gallery and there is a däis at the northern end of the hall. On the west, the Strachey Hall is connected with the chain of lecture rooms running to the mosque by the Khalifa Mohamed Hassan arch, and in the east by a similar arch, called the George Henry Lawrence arch, it is connected with the line of lecture rooms terminating in the library and the Honorary Secretary's office.

The first room on the west is the Tassaduq Rasul Khan Arabic lecture room which opens into a large lecture room called the Asman Manzil (used for lectures on arts course subjects). Next comes the Barkat Ali lecture room, and then the Nizam museum (see photograph) in one portion of which kindergarten materials have been placed.

On the east of the Strachey Hall is a similar set of rooms designated respectively the Hamid-ullah Khan lecture room, the Beck Manzil, the reading room (between the Beck Manzil and the Lytton library). The Lytton library containing about 12,000 volumes, and the Mehdi Manzil consisting of two rooms used as the Office of the Honorary Secretary. The block immediately adjacent to the Mehdi Manzil is devoted to science, the central hall and one room on either side of it being used for practical physics, while the other rooms on the north are used for the chemical laboratory, lecture rooms and workshop. On the south are the office of the professor of science and two lecture theatres. A separate building for science is being planned (Government has given Rs. 20,000 towards it) and when it is ready the present science rooms will be used for art classes.

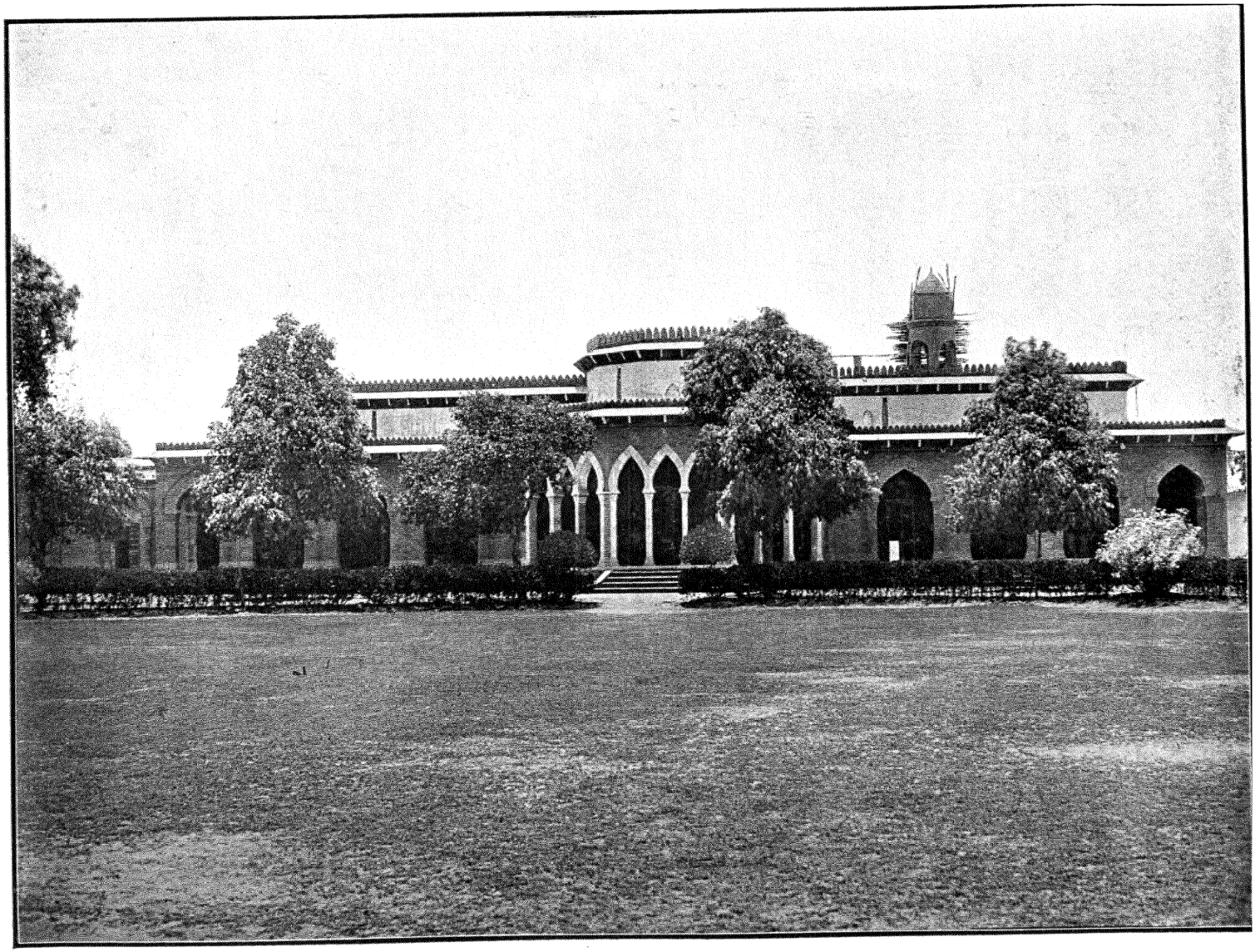
The south-east block of buildings contains in addition to the science department rooms mentioned above five rooms used as college offices, and twenty rooms for boarders.

The south wing which is divided into two by the main gate contains thirty-one rooms. At the south-east corner is a door opening into the dining hall. This is called the Salar Manzil and was built in 1882.

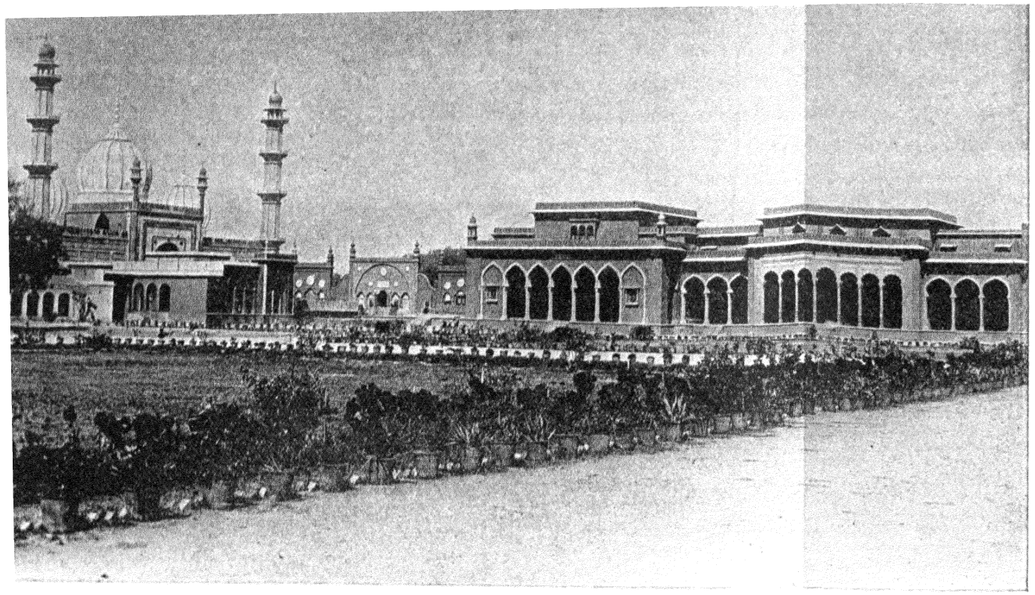
The south-west block, called the new barrack (to be rebuilt in the style of the rest of the court) consists of 21 rooms for boarders and the Dean's residence which adjoins the mosque. The Dean's house is separated from the boarding houses by a gateway leading to the cricket field in the west.

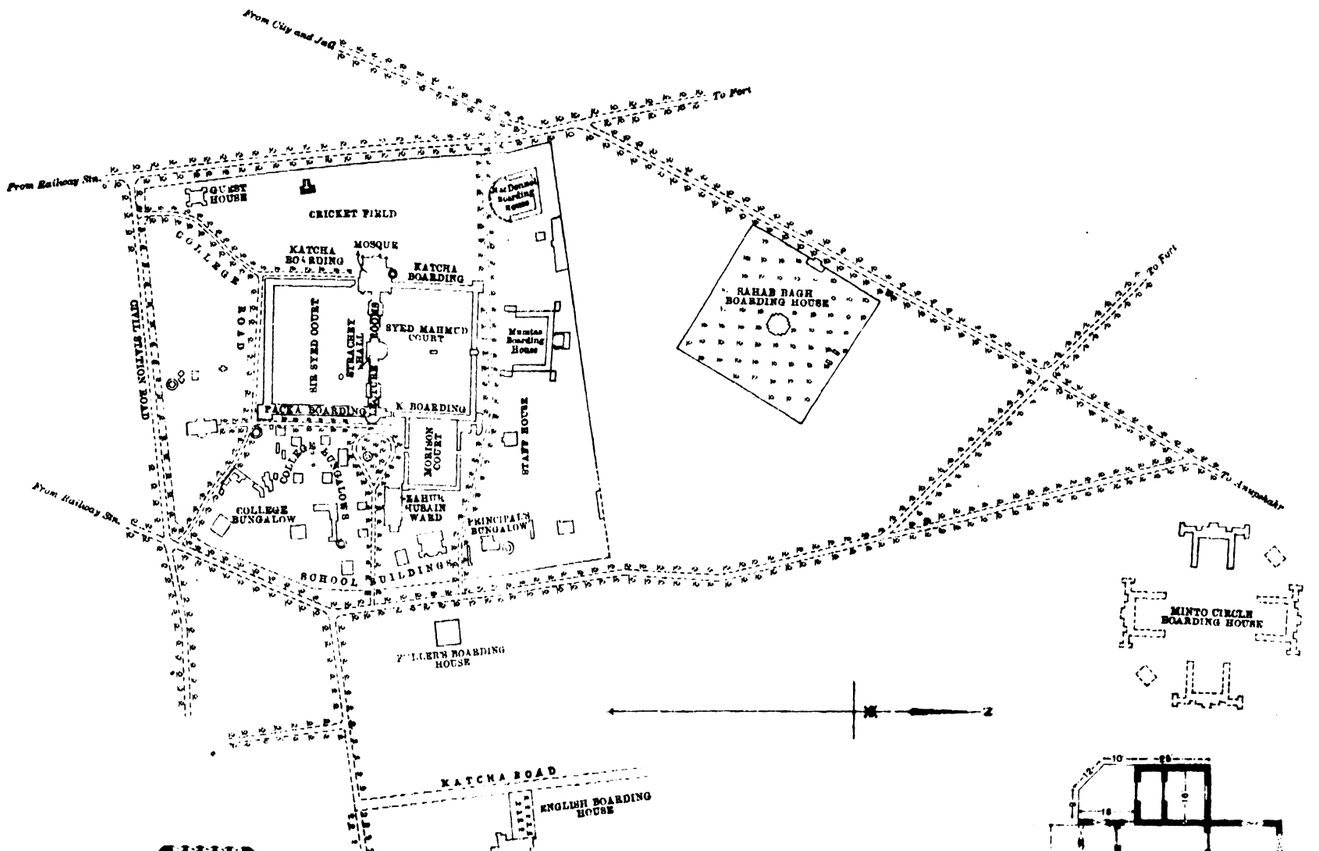
The mosque is said to be somewhat similar in form to the Juma Musjid at Delhi. North of the mosque are the tombs of Syed Mahmud, Sir Syed Ahmad Khan, Nawab Mohsin-ul-Mulk, and Zain-ul-Abedin Khan, and adjoining these is the Mahmud Manzil which contains a collection of theological books.

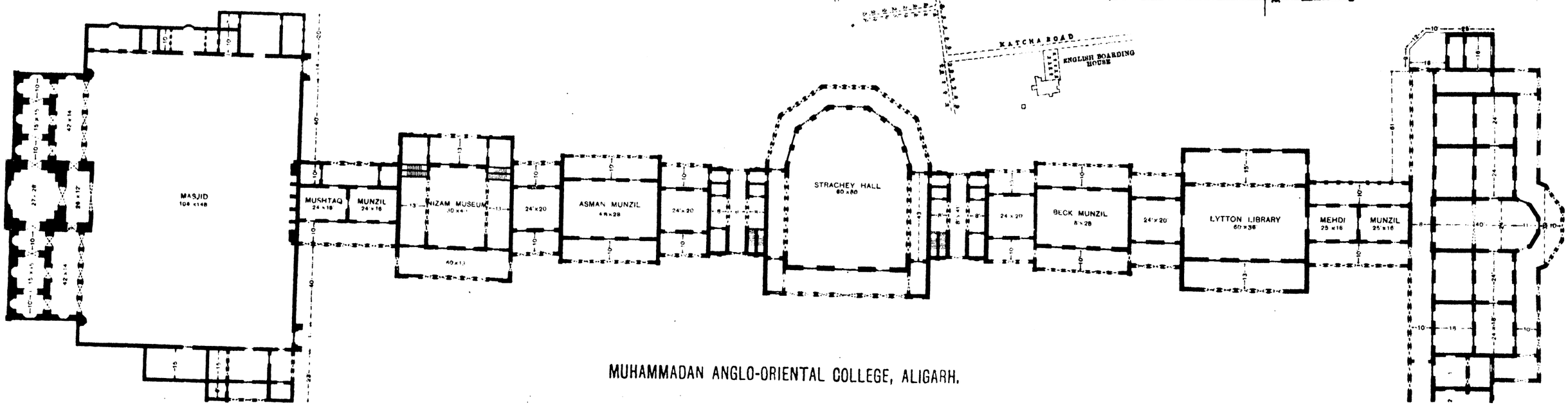
The north-west wing Syed Mahmud court contains 22 rooms for boarders while the north block consists of 33 rooms. In the middle of this block, facing the Strachey Hall, is a two storeyed building called the Adamji Pirbhoy Manzil, which is used as quarters for some of the Indian staff. The north-east block contains 22 rooms for boarders and is separated from the science workshop by a small gateway.



SCIENCE LABORATORY, MUHAMMADAN ANGLO-ORIENTAL COLLEGE, ALIGARH.







MUHAMMADAN ANGLO-ORIENTAL COLLEGE, ALIGARH.

On the west of the main block already described is the cricket field, on the north of which, and separated from it by the Morison road, stands the MacDonnel boarding house which contains 17+1+8=26 rooms. The north wing also contains a prayer room, and the east wing contains the dining hall. The LaTouche Mumtaz boarding house is a similar building, situated on the east of the MacDonnel house, facing Adamji Pirbhoy Manzil and separated from it by the Morison road. The Morison court, adjoining the north-east wing of the main college buildings, consists of three sides of a boarding house which contains 15+15+15=45 rooms and also a prayer room and a dining hall. Issuing from the Morison court gateway we come upon a plot of land called the Graduates' lawn to the south of which is the Siddon Union Club. To the south-east of the Morison court is another court called the Zahur Husain Ward used to accommodate junior schoolboys.

To the east of the Morison court are four bungalows used for school classes; and on the other side of the road outside the compound is another bungalow called Fuller house, which is used as a boarding house. To the east of the Fuller house is the English house formerly the residence of Sir Syed Ahmad Khan, which is a boarding house for schoolboys under an English master.

There are also six small bungalows inside the college compound intended for Hindu boarders and members of the Indian staff in addition to four bungalows occupied by members of the European staff.

About three quarters of a mile from the college to the south of the civil station and close to the Judge's court towards its north is the Aligarh Scientific Institute house, now occupied by law students.

During the present year there were opened two other buildings for college boarders. One of them, the Saheb-Bagh house, is situated to the north-west of the Mumtaz house and provides accommodation for 45 students. It is the house occupied by M. Perron previous to 1803. The other court forms part of a block (under construction) called Minto Khan Zaman circle. It is situated to the north of the college at the distance of about a mile and provides accommodation for 80 students.

Two other buildings are under construction to be called respectively Tassaduq Rasul Khan Hewett boarding house and Abdus Shakur-Abdul Karim-Jamal hostel. These new buildings are intended for the exclusive use of students of the school department, and when, on their completion, the school establishment will be transferred to them, the MacDonnel and similar other houses will be appropriated for increasing the existing accommodation for college students.

No. of college students	476
No. of school students	475
Boarding house accommodation—	
No. of boarders	814, 446 (college) *plus* 368 (school).
Material of buildings	Granite stone, red brick and second class bricks.
Cost of buildings	Not ascertainable at present.

Agra College, Agra.

In 1818 a learned Pandit, Ganga Dhar Shastri, was granted by the Peshwa Madho Rao the rents of certain lands in the Aligarh and Muttra districts for the benefit of "comers and goers" and "students of Vedas." In 1823, the Agra College was opened by Government in accordance with what was understood to be the wish of the founder. Subsequently Government increased the endowment, and raised the college to its present status. In 1883 the management was transferred from Government to a Board of Trustees.

The main portion of the present building was erected in 1827, the northern wing in 1842, and the southern wing in 1890. In 1890 a collegiate school building was erected immediately behind the college. There are more than 200 boarders accommodated in a large hostel and seven small bungalows, the property of the college.

The college occupies a fine site of several acres adjoining the Drummond road. It is a one storeyed building facing almost due west and occupying a frontage of about 430 ft. Except at the centre, the depth of the building is 80 ft. and the height about 35 ft. The plinth is 5 ft. high in the main building and 2 ft. in the wings. The main building contains, in addition to class rooms and offices, a hall about 55 ft. by 30 ft. by 30 ft. high and a library, which is also used as a committee room, about 31 ft. by 30 ft. The walls of the building are of brick faced with cement plaster, the floors are of stone and the roof is composed of red sandstone slates resting upon wooden rafters. The northern wing, in addition to class rooms, contains a theatre about 58 ft. by 32 ft. by 32 ft. high with desks and benches rising in twelve tiers.

The southern wing which contains the physics and chemistry laboratories is 80 ft. by 32 ft. by 31½ ft. high.

A verandah runs round the college except at the corner class rooms. It is 9 ft. 10 in. wide except at the back of the library where its width is about 22 ft.

The class rooms are 25 ft. high and most of them are 31 ft. long by 20 ft. broad. The lighting is through unglazed windows over the doors, which, except in class rooms situated at the corners of the building, open on to verandahs.

The physics and chemistry laboratories are supplied with gas and water, and fitted with work tables.

A carpenters' workshop has recently been built immediately in the rear of the physical laboratory. The library, which contains over 8,000 volumes, is also used as the principal's office and professors' common room.

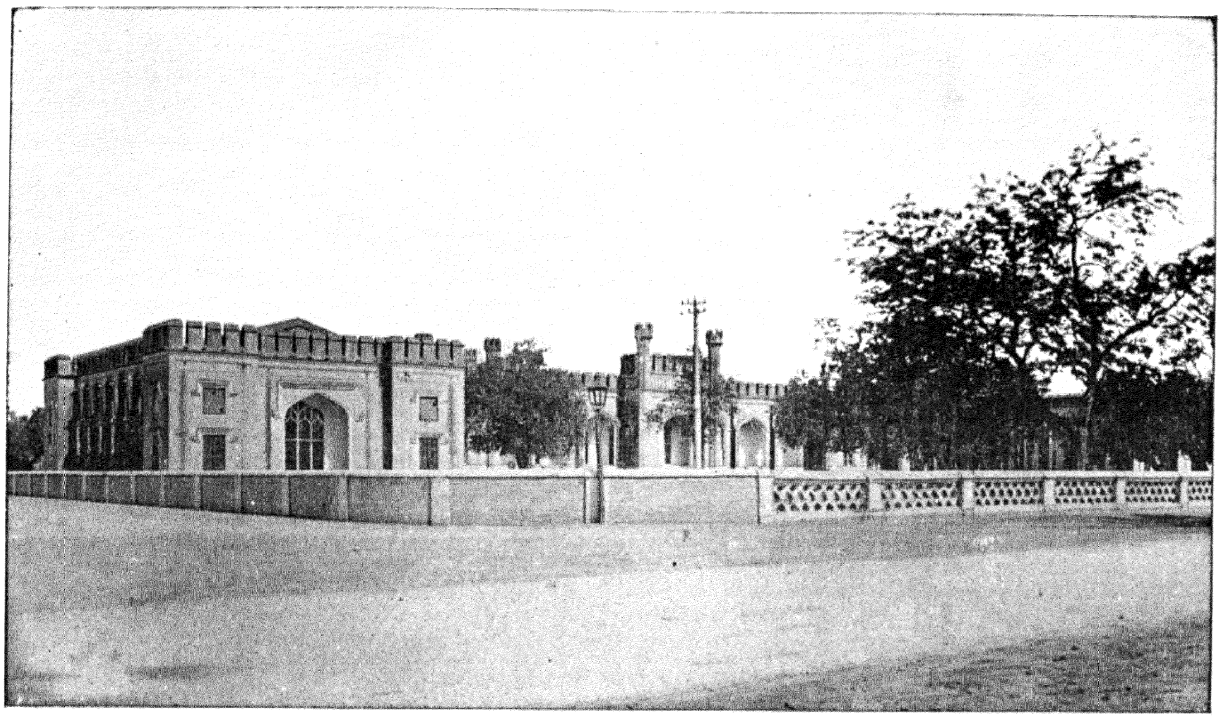
There are two other offices, one for the college and the other for the school department, the latter being also used as a headmaster's room.

The compound is surrounded by a wall about 3 ft. high.

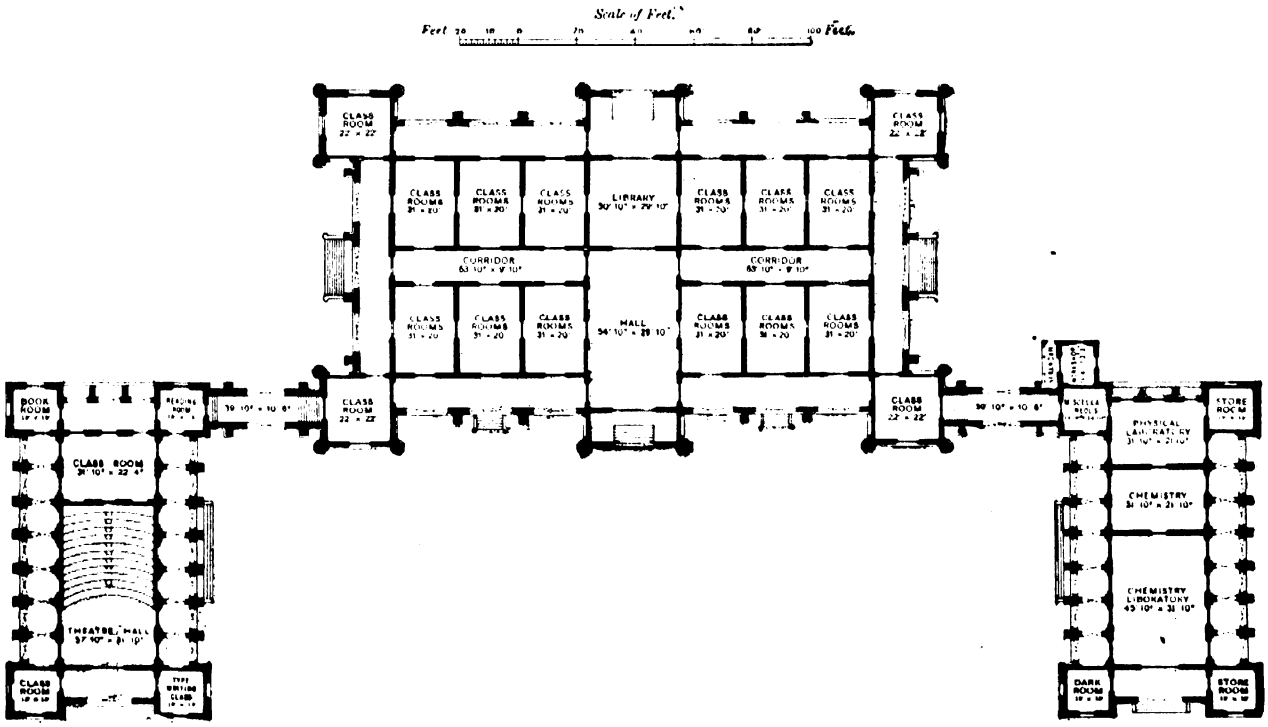
There are two tennis courts in the compound in front of the college. The land south of the college is in two terraces, one on the level of and adjoining the Drummond road being laid out as a garden, and the other on the lower level facing east being used as a cricket field. South of the college compound are the residences of the principal and senior professor.

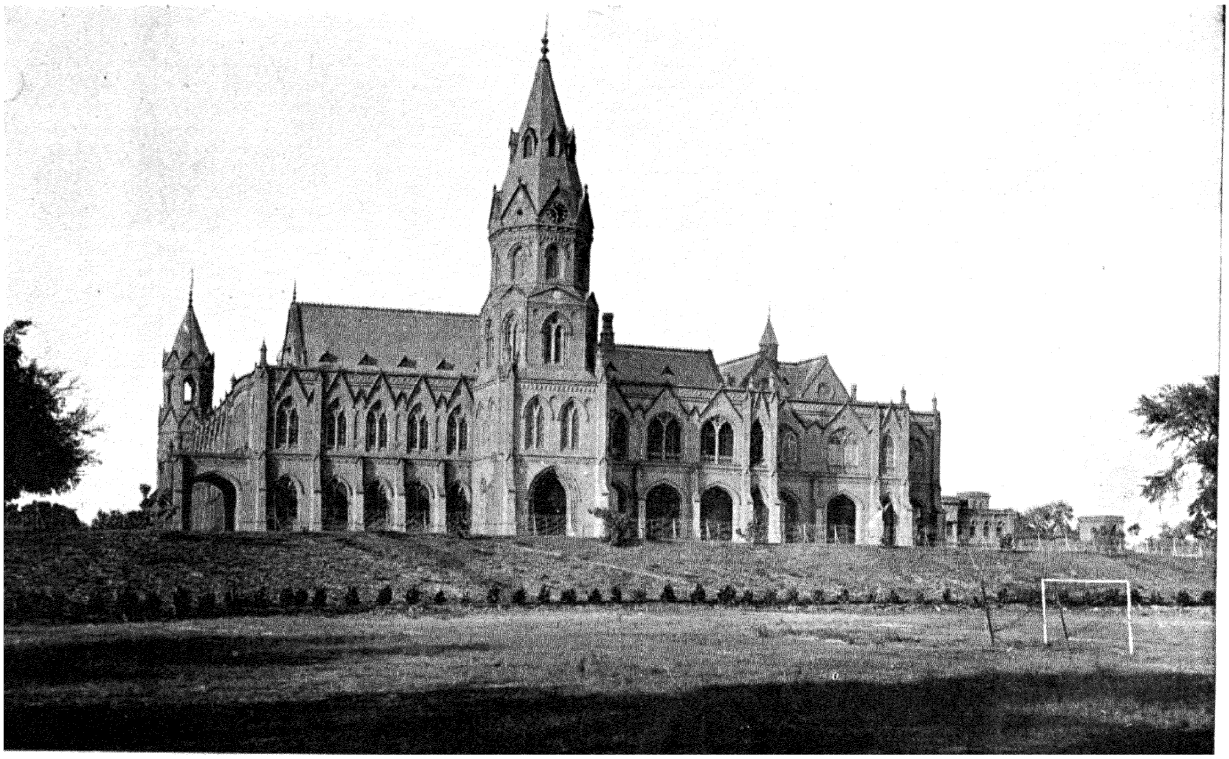
The various parts of the Agra College have been built at different times at a total cost of about Rs. 69,337.

During the last ten years gas and water have been supplied to the laboratory at a cost of about Rs. 5,000, land has been levelled for a cricket field at a cost of over Rs. 4,000, and nearly a lakh of rupees has been spent on building the new hostel and a residence for the principal. A sum of Rs. 500 a year is spent on the library and more than twice that amount, on the average, on scientific apparatus.

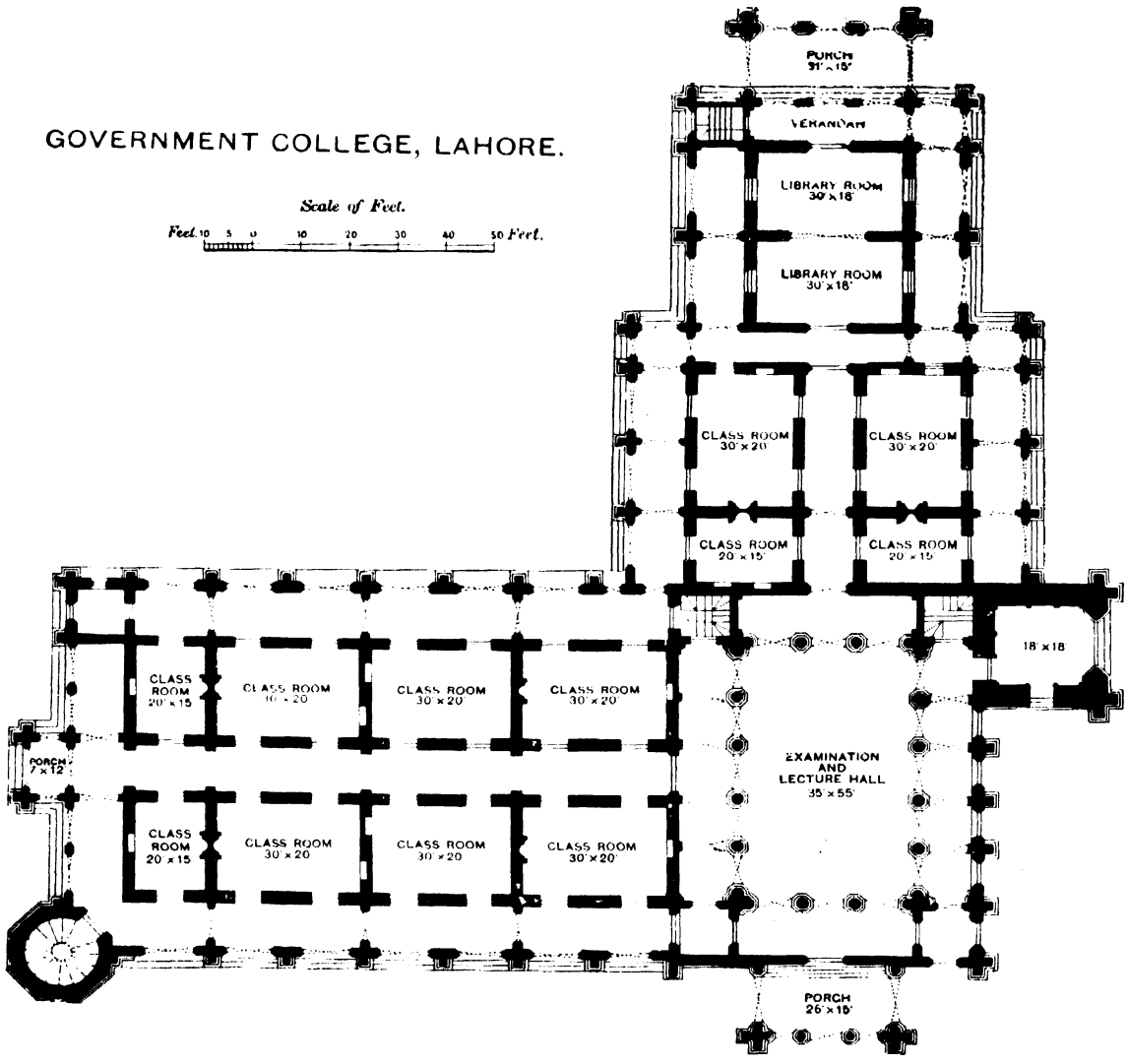


AGRA COLLEGE.





GOVERNMENT COLLEGE, LAHORE.



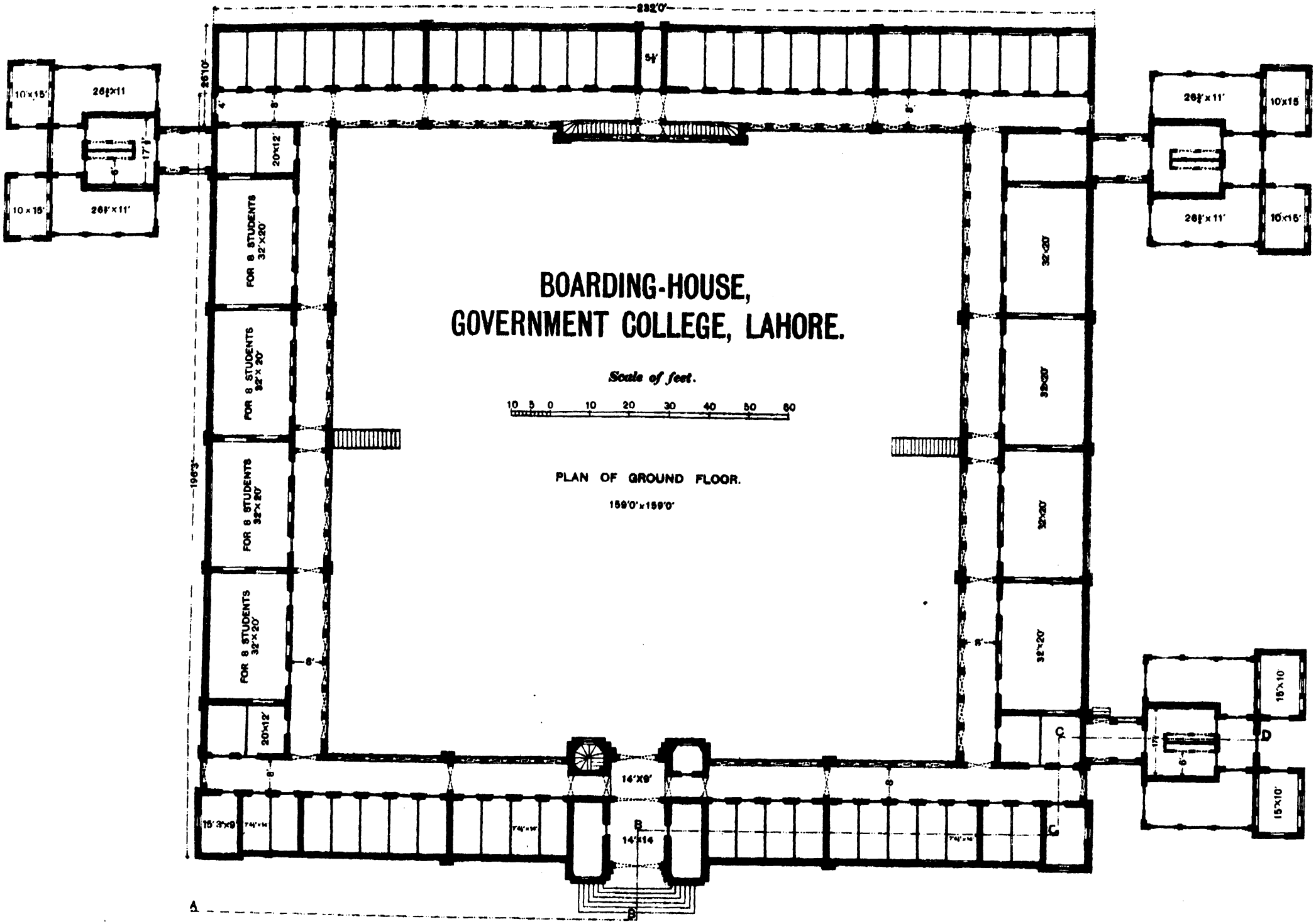
BOARDING-HOUSE, GOVERNMENT COLLEGE, LAHORE.

Scale of feet.

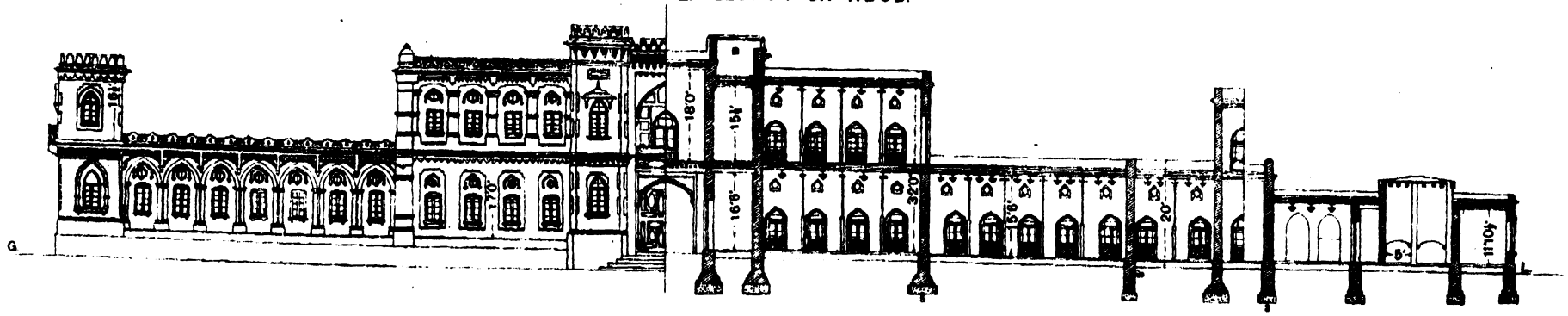
10 5 0 10 20 30 40 50 60

PLAN OF GROUND FLOOR.

159'0" x 159'0"



HALF ELEVATION AND HALF SECTION ON ABCD.



Government College, Lahore.

The Government college is located in a double storeyed building specially built for the purpose. It was begun in 1872 and was completed in 1877, at a cost of 2½ lakhs of rupees. There are two wings, connected by a hall 35 ft. by 55 ft. The eastern wing contains one large lecture room 38 ft. by 30 ft., two lecture rooms 30 ft. by 20 ft. each, the staff room and the office of the principal, each 20 ft. by 15 ft. These rooms have marble floors.

The northern wing contains eight rooms, six 30 ft. by 20 ft. and two 20 ft. by 15 ft. Six of these rooms are used for lectures, one for the college office, and one contains the office of the principal of the Oriental College. The college library is situated in the hall which is also used for examination purposes and as a reading room.

The upper storey contains the physical and the biological laboratories of the college. The physical laboratory occupies the east wing and consists of a lecture room 38 ft. by 30 ft. with gallery, two rooms for practical work 48 ft. by 20 ft. and 30 ft. by 27 ft. respectively, three dark rooms for light experiments and for photography, two of which are under the gallery, a battery room, an apparatus room 48 ft. by 20 ft., a preparation room and a room used for M. Sc. practical work. The biological department consists of the same number of rooms and of the same measurement as in the northern wing below. These give —

1. One lecture room.
2. One room, partly used as a lecture room for small classes, and partly as a botanical museum.
3. Three rooms used as laboratories.
4. A professors' room.
5. A preparation and diagram room.

There is also one small room used by assistant professors. The zoological museum is accommodated in the gallery overlooking the hall.

The chemical laboratory of the college is situated in a building quite separate from the main building. It was built in 1902 and is now being enlarged (1909). The present building contains a lecture theatre holding 85 students, a laboratory for 36, balance room, store room, preparation room, store room and two small rooms for the professor and demonstrator. The new building when complete will comprise one large laboratory holding 70 students for elementary work, 60 ft. by 40 ft., new laboratories for organic, physical and analytical work; a new small lecture room, professors' and assistant professors' rooms, store room, combustion room, balance rooms, dark room and library. The present lecture theatre will also be enlarged to hold about 120. The gas installation will also be enlarged and improved and a water tower, to give a 40 ft. head, erected. The gas is used for practical work in this laboratory as well as in the physical laboratory. The college hall has also been supplied with gas.

In 1889 the commencement of the existing boarding house was sanctioned and three sides of the quadrangle were at once built. The fourth side was added in 1899. It is a large double storeyed building and consists of 98 cubicles 14 ft. by 7 ft., 8 dormitories, 2 sick rooms, and superintendent's quarters, containing one room for the office and two for private use. It is provided with three blocks each divided into three kitchens and two dining rooms for Hindus and one block containing two kitchens and one dining room for Muhammadans. A bathroom for Hindus and another for Muhammadans is provided for boarders. A swimming bath, 80 ft. by 40 ft., has also been constructed. In 1891 the Presbyterian Church was acquired and fitted up as a gymnasium. Playgrounds for cricket, football, hockey and tennis are attached to the college and an oil engine pumps water to irrigate these grounds and fills and empties the swimming bath.

In the same year the Lahore dâk bungalow was converted into the principal's residence.

The Small Cause Court in the vicinity of the college was transferred to the Education Department in 1907 as a residence for professors.

Islamia College, Lahore.

The institution is the outcome of the united exertions of the Mussalmans of the Punjab. It is financed and managed by the Anjuman-i-Himayat-i-Islam of Lahore. The buildings of the college occupy fine positions in a compound of 8½ acres, situate on the southern side of the Brandreth road. The land was purchased at a cost of Rs. 64,000. In the western corner of it stands the Rivaz hostel (named after Sir Charles M. Rivaz, Lieutenant-Governor) occupying an area of 40,500 sq. ft. On its northern side is the college building proper covering some 36,768 sq. ft. approximately. To the north-west of the Rivaz hostel are the library and the reading room housed in a separate block measuring 93 ft. by 45 ft. by 20 ft. high. The remaining portion of the land is utilised as playground.

The buildings are located in a healthy part of the civil station and at a convenient distance from the other arts colleges of Lahore. The main structure, the foundation stone whereof was laid by the Amir of Afghanistan in 1907, measures 383 ft. by 96 ft. It consists of a spacious hall (measuring 72 ft. by 48 ft. by 40 ft. high) flanked by two wings of precisely equal dimensions. Each wing consists of two parallel rows of rooms separated by a corridor 8 ft. wide, and each one of these rows comprises 3 ordinary lecture rooms (each measuring 30 ft. by 20 ft. by 20 ft. high) and one big chamber (measuring 45 ft. by 30 ft. by 20 ft. high). The two big chambers in the western wing are to be utilised as laboratories and are being equipped with the necessary appliances. The plinth is 3 ft. high and supports on all sides open arcades, in the Moghal style, the arches measuring 8 ft. wide, 8 ft. high and 11½ ft. from centre to centre. There are altogether twelve towers, four on the four corners of the hall and eight on the outer corners of the big chambers in both wings. The towers of the hall are 9½ ft. in diameter, while the smaller ones are only 6 ft. Each tower has a stone staircase leading up to the top. There is to be a second storey as well, but for the present it will consist of only 4 ordinary sized rooms, two on each side of the hall. Further additions will be made as necessity arises.

To sum up. The main building consists of twenty rooms large and small, exclusive of the hall :—

1. The hall 72 by 48 by 40 ft.
2. Four large rooms each measuring 45 by 30 by 20 ft.
3. Twelve ordinary lecture rooms in the lower storey each measuring 30 by 20 by 20 ft.
4. Four ordinary rooms in the upper storey each measuring 30 by 20 by 20 ft.

The library and reading room, though housed in a separate block, really constitute a part of the college building proper.

There are three rooms in this block :—

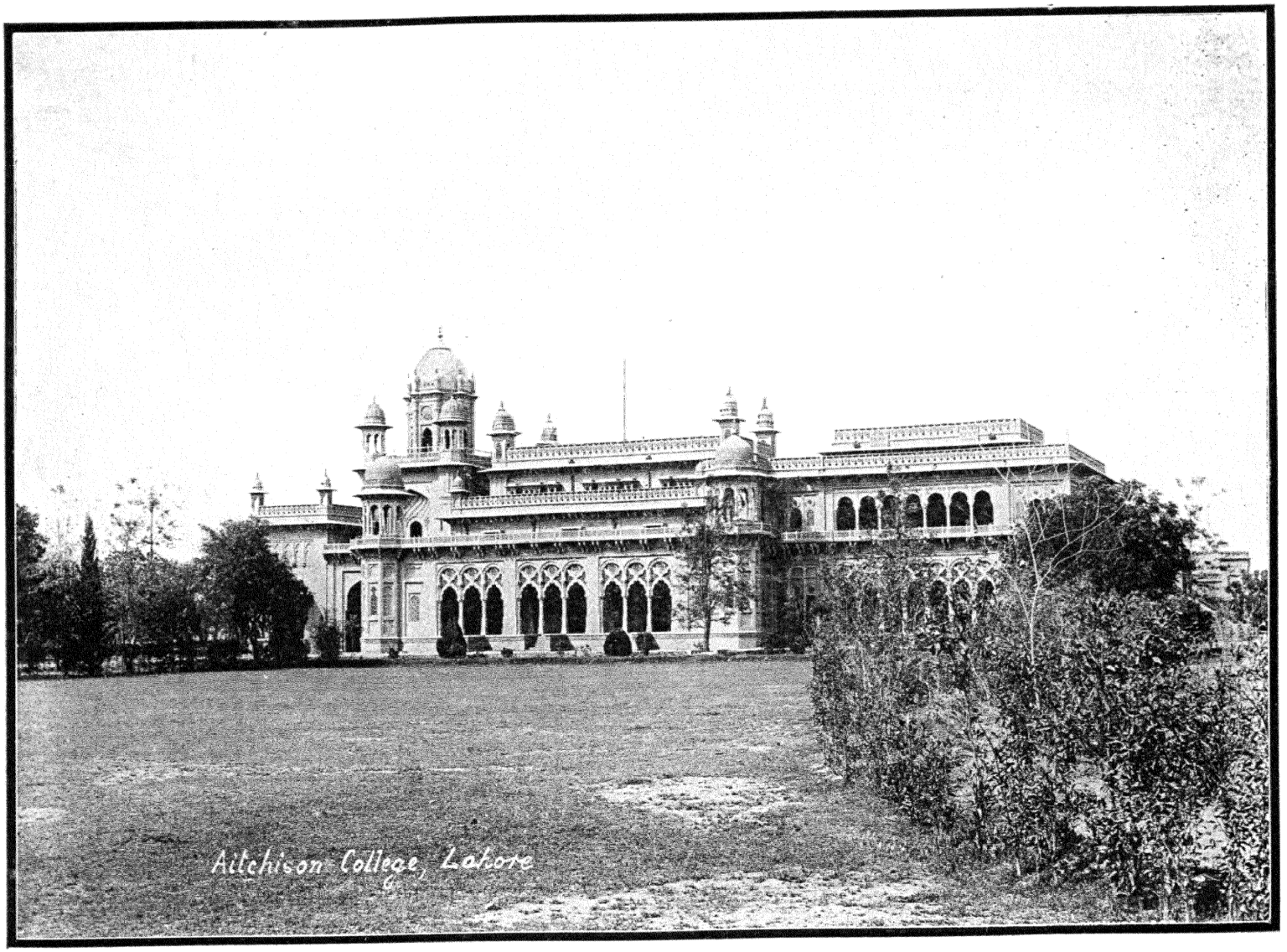
1. The central room 45 by 30 by 20 ft.
2. Two flank rooms, each measuring 30 by 20 by 20 ft.

There is a fine verandah in front measuring 93 by 10 by 20 ft. The rooms face east.

The Rivaz hostel may be dealt with very briefly. The residential portion of the hostel occupies an area of 28,260 sq. ft., being in the shape of a rectangle 180 ft. long and 157 ft. broad. The dining hall, outhouses, kitchen, &c., cover approximately 12,722 sq. ft. There are 36 cubicles, 10 large dormitories and six small dormitories for the use of students. Each cubicle measures 12 by 8 by 13 ft. high and is meant for the residence of only one student. The larger dormitories measure 25 by 18 by 13 ft. high each, and the smaller ones 20 by 12 by 13 ft. each. The dining hall measures 60 by 18 by 13 ft. high. The eastern side of the structure is double storeyed and has a fine gallery on the outer side—one of the finest in Lahore.

The Committee propose fitting the new class rooms with rising tiers of benches. The benches will probably be arranged in the form of a crescent. Each ordinary sized room will accommodate 50 to 60 students at the outside.

Proper arrangements have been made for lighting and ventilation. The lighting is through glass doors opposite the arches and the fair-sized ventilators above.



AITCHISON COLLEGE, LAHORE.

The Aitchison College, Lahore.

The Aitchison College is situated on the Upper Mall, Lahore, about half way between the city and the Lahore Cantonments, at the extreme eastern end of the civil station. The buildings, which include the main college building, three boarding houses, a mosque, gymnasium, dispensary, residential houses for the principal and the assistant principals, quarters for the Indian staff, besides servants' quarters and stables, lie in a compound of about 130 acres.

The principal feature of the main building is a large hall about 70 by 30 ft. with a highly decorated paved floor. This hall is used for assembling the boys and for public functions and entertainments. On either side, and opening into it, are three class rooms, about 24 by 21 ft. in area, each suitable for the accommodation of about 15 boys. At the west end, separated from the hall by the main entrance to the college, are two more class rooms of somewhat smaller dimensions facing north and south ; a broad porch opening out to the west lies between them. To the east of the main hall are two more class rooms, opening into each other, each capable of accommodating about 20 boys. In the eastern section of the building there is an upper storey, reached either from the outside by a flight of steps over the eastern portico or by steps leading up from either side of the main hall or else by staircases leading up from the masters' rooms which lie on either side of the eastern (or back) entrance to the main hall. In the upper storey there are two small rooms, hitherto used as a museum, and a large room covering the extent of the two class rooms below. This room was originally used as a library, but has now been converted into and fitted out as a science laboratory, the library having been moved into one of the recreation rooms where it is more accessible to the boys.

The whole of the college, with the exception of the western section, is flanked by a verandah about 12 feet broad. The height of the plinth is about 4 feet.

The general plan for the arrangement of the class rooms is to place the desks so as to form three sides of a square. On the fourth side is the teacher's desk. When sitting accommodation is required for more than nine boys, the extra desk is placed in the rear of that facing the teacher and is raised. There are seldom more than 12 boys in a class. The material of the building is brick and marble. The design is the result of a combination of the joint design of Mr. L. Kipling and Bhai Ram Singh, both of the Lahore School of Art, and that of Colonel Locke. The cost was Rs. 2,11,131.

The boarding houses, which are about 100 yards north of the main college building, and face south, are three in number and are identical in pattern. Each forms three sides of a quadrangle and they are in the same alignment. The most easterly boarding house is occupied by Muhammadan boys, the central by Hindus and Sikhs and the western by "scholars" of the three denominations. In this boarding house the cubicle system is adopted, and the rooms are 16 ft. by 9 ft., while in the other boarding houses the size of the rooms is greater, being 16 ft. by 18 ft. In the middle of each block is a large room (48 ft. by 24 ft.) used in the Muhammadan block as a mess room, in the Hindu block as a general recreation room and library and in the "scholars" block partly as a Sikh mess and partly as a recreation room. The recreation rooms are also used as preparation rooms in the evening. A verandah about 9 ft. in width fronts the boarding houses.

Each boy, except in the case of brothers who generally share a room when it is of the larger type, has his own room with bath room attached. A certain amount of furniture, a table, chair, bed, chittai and lamps are supplied by the college. The further furnishing and decoration of the rooms is, with certain restrictions, left to the individual taste of the boys. The cost of three blocks was Rs. 1,60,720.

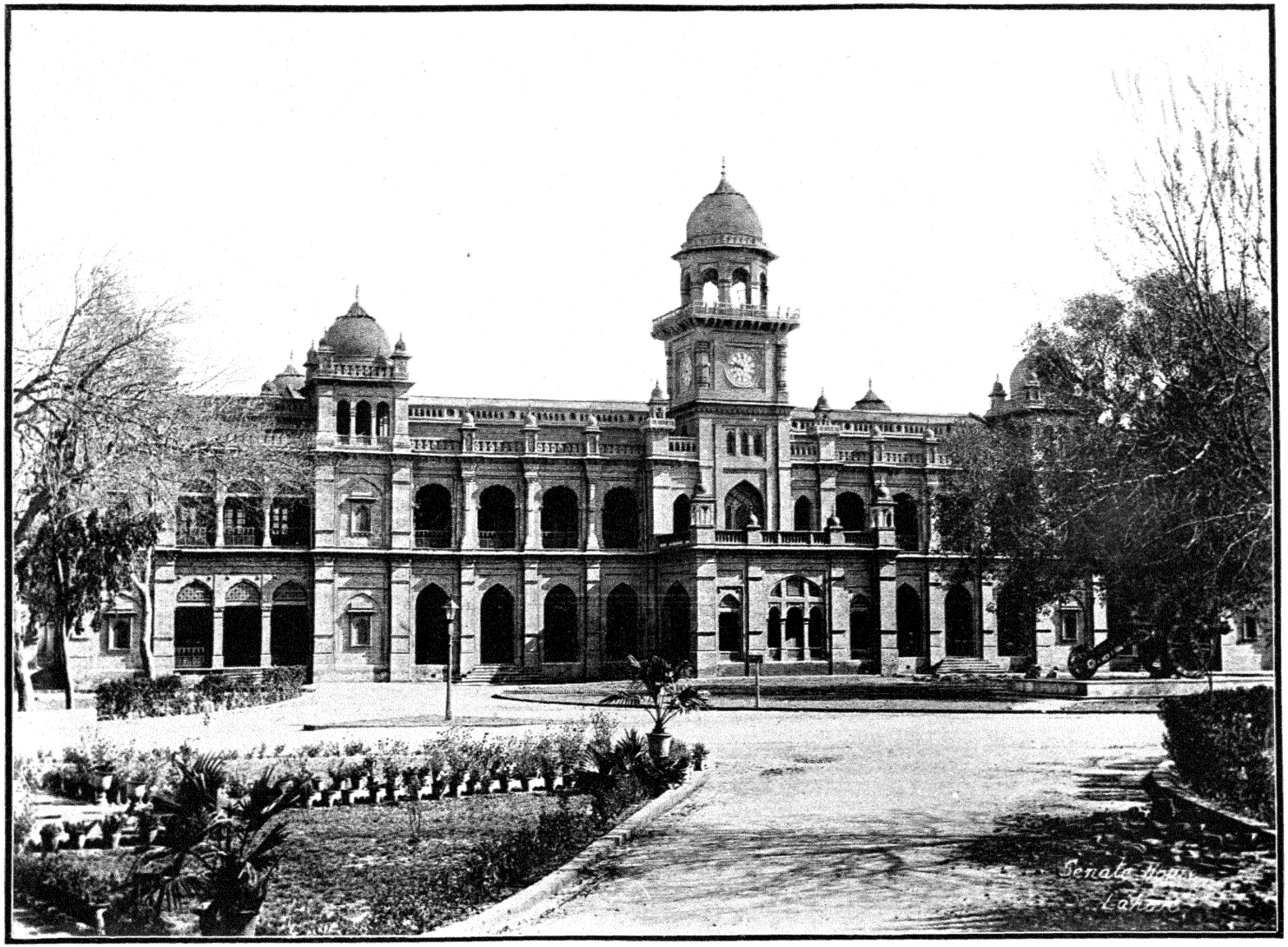
In practically the same alignment as the boarding houses are the gymnasium and the mosque. The gymnasium, which lies to the west of the boarding houses, is spacious and well fitted with appliances. It was given by the Hon'ble Malik Umar Hayat Khan, C.I.E., Tiwana, an old boy of

the college. The mosque, which lies at the eastern end of the boarding houses and in close proximity to the Muhammadan block, was the gift of His Highness the late Nawab of Bahawalpur, also an old boy of the college. Between the Muhammadan and Hindu blocks, and about 50 yds. to their rear, stands the hospital and dispensary, the gift of Sardar Balwant Singh of Ber, Ludhiana, one of the first members of the college. This building contains two rooms with accommodation for four patients, a dispensary and quarters for the hospital assistant. Behind the boarding houses are two rows of servants' quarters : the first row is occupied by the boys' servants and contains kitchens, the second by college servants and syces. Behind these again are the stables, which consist of two blocks about 100 yds. apart, each with accommodation for 16 horses. Still further to the rear are theseIndian masters' quarters, consisting of two blocks and still further north is a swimming tank.

There are four residential houses in the college compound : the principal's house is situated in the angle made by the Davis road and the Upper Mall, the western and southern boundaries of the college; the senior assistant principal's house, in the angle made by the Davis road and the northern boundary; and the junior assistant principal's house to the east of the compound in a line taken from the mosque to the Bahawalpur house which is on the Upper Mall road. The latter house was built to accommodate His Highness the late Nawab of Bahawalpur (and his tutor) when he was reading in the college, and is the property of the Bahawalpur State, which, however, allows the college to use it, when it is not required by the State, for any boy reading in the college.

The grounds in which the college stands are laid out with trees and shrubs : there are two foot-ball, two hockey, a cricket and tennis, grounds. Besides these there are two riding schools.

The total amount spent in building the college was Rs. 4,82,100. The foundation stone was laid in 1886 by Lord Dufferin, the then Viceroy. The college derives its name from Sir Charles Aitchison, Lieutenant-Governor of the Punjab, to whose initiative and interest the inauguration and completion of the scheme were due.



SENATE HOUSE, LAHORE

The Punjab University Hall.

The Punjab University Hall, or Senate House, an imposing building in the Moghal style, is prominently situated on the Upper Mall, facing the Lahore museum, and adjacent to the local Town Hall and the municipal gardens.

It is within five minutes' walk, from most of the local colleges, and is close to the office of the Punjab Education Department. It is surmounted by cupolas and minarets and has a clock-tower about 65 ft. high over the front vestibule. The building comprises one large main hall with two double storeyed wings to east and west, and a two storeyed verandah 10 ft. wide and 17 ft. high (each storey) on all sides.

The main hall, which is used for the University Convocation and examination purposes, measures 150 ft. by 60 ft. by 38 ft. Its inside walls and the planked ceiling have a surface decoration in oil-paint and distemper, and there are also a number of balconies balustraded in carved wood supported on stone consoles, which are chiefly used by lady visitors on the occasion of the University Convocation.

The east and west wings (lower storey) are each made up of three rooms, the middle one being 25 ft. square, and 17 ft. high, while the side rooms measure 25 ft by 16 ft. by 17 ft. All of these rooms are used for the University examination purposes with the exception of one side room on the west wing which is used as a lavatory. The upper storey on the west wing is similar to the lower one and is used for office purposes, while the upper storey in the eastern wing consists of a large hall 62 ft. by 25 ft. by 22 ft. and is used for the University library.

The main hall has a wooden floor, and the rest brick floors. The steps on all sides are paved with flags of red stone, but the floor opposite the main entrance and also the steps leading to it, are paved respectively with encaustic tiles and white marble slabs. The roofs in the first storey, with the exception of the main hall and the carriage portico, are of jack arches turned on steel beams. The main hall has a corrugated iron covering carried on iron trusses, all other roofs being flat terraces supported on steel beams and joists. The building is *pucka* throughout, and sufficient ventilation and light have been provided by means of a large number of glazed fanlights, doors and windows.

The foundation stone was laid by Sir Charles Montgomery Rivaz, K.C.S.I., in 1905, and the work was completed in 1905.

The compound comprises an area of nearly three acres and the superficial area of the block plan is 24,000 sq. ft.

The cost of the building was Rs. 2,10,000, which is a little under four cubic ft. of the gross volume per rupee or Rs. 8-12-0 per sq. ft. of the plinth area.

The Khalsa College, Amritsar.

The college and school buildings at present consisting of two large two storeyed blocks each 500 ft. long with a dharamsala in the middle, together with principal's bungalow, staff quarters for 25 masters and professors, dispensary and science laboratory, stand in an open and healthy estate of 101 acres in extent, at a distance of about two miles from the city of Amritsar. The two blocks 700 ft. distant from each other were built for the accommodation of boarders, the western block containing 44 rooms for college students, the eastern block with 61 rooms for 400 school boarders. Owing to the fact that the main building is not yet complete, the lower storey of the other block has been hitherto used for class rooms.

These boarding houses will contain altogether accommodation for some 700 boarders, when the second storey, which is being added to the back portion of block B, is completed.

The main building, now in course of construction, will be a handsome brick structure of an H shape with two wings at the rear. Its façade (double storeyed) is 500 ft. long and is connected with a parallel building of equal dimensions by a marble paved hall 102 ft. by 52 ft. In the centre of the front will be a marble vestibule with porch, surmounted by a tower and dome 116 ft. high in which will be placed a four sided clock with 6 ft., dials. At each end of the parallel buildings there will be a large cross-shaped room surmounted by tower and dome 63 ft. high. These rooms will serve for museums and library. The front building will be used for college classes and the rear building with its two wings will be for the school department.

The dimensions of the ordinary class rooms are 24 ft. by 20 ft., while there are four larger rooms measuring 28 ft. by 24 ft. There will be accommodation for about 1,800 students. A verandah 10 feet wide extends the whole length of these buildings with handsome porticoes at each end.

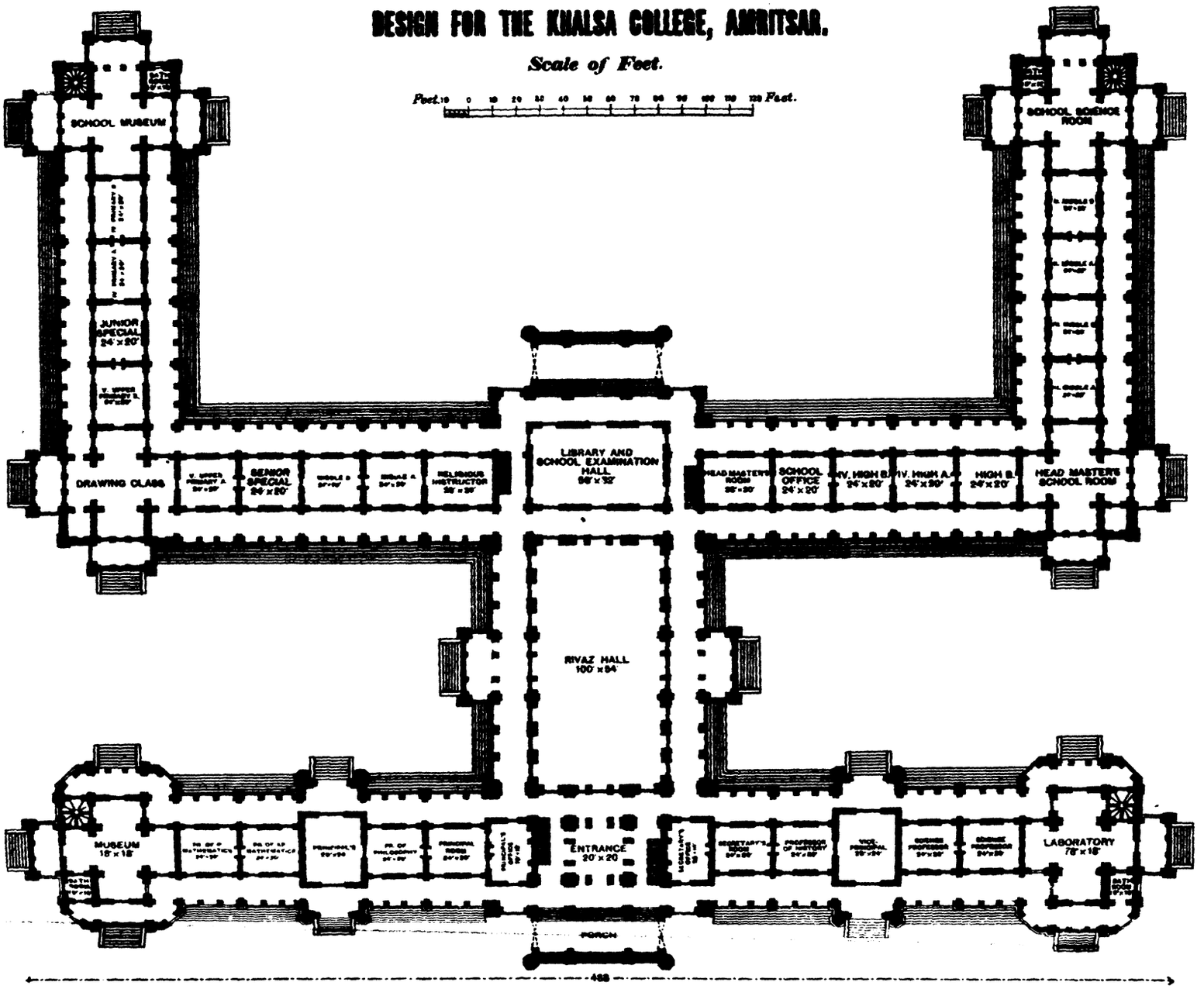
The whole exterior of the building will be highly ornamental involving the use of many lacs of special moulded bricks and the construction of many domes and finials.

The science laboratory built externally in a similar style is situated at a distance of 110 ft from the western end of the main building.

DESIGN FOR THE KHALSA COLLEGE, AMRITSAR.

Scale of Feet.

Feet. 10 0 10 20 30 40 50 60 70 80 90 100 110 120 Feet.

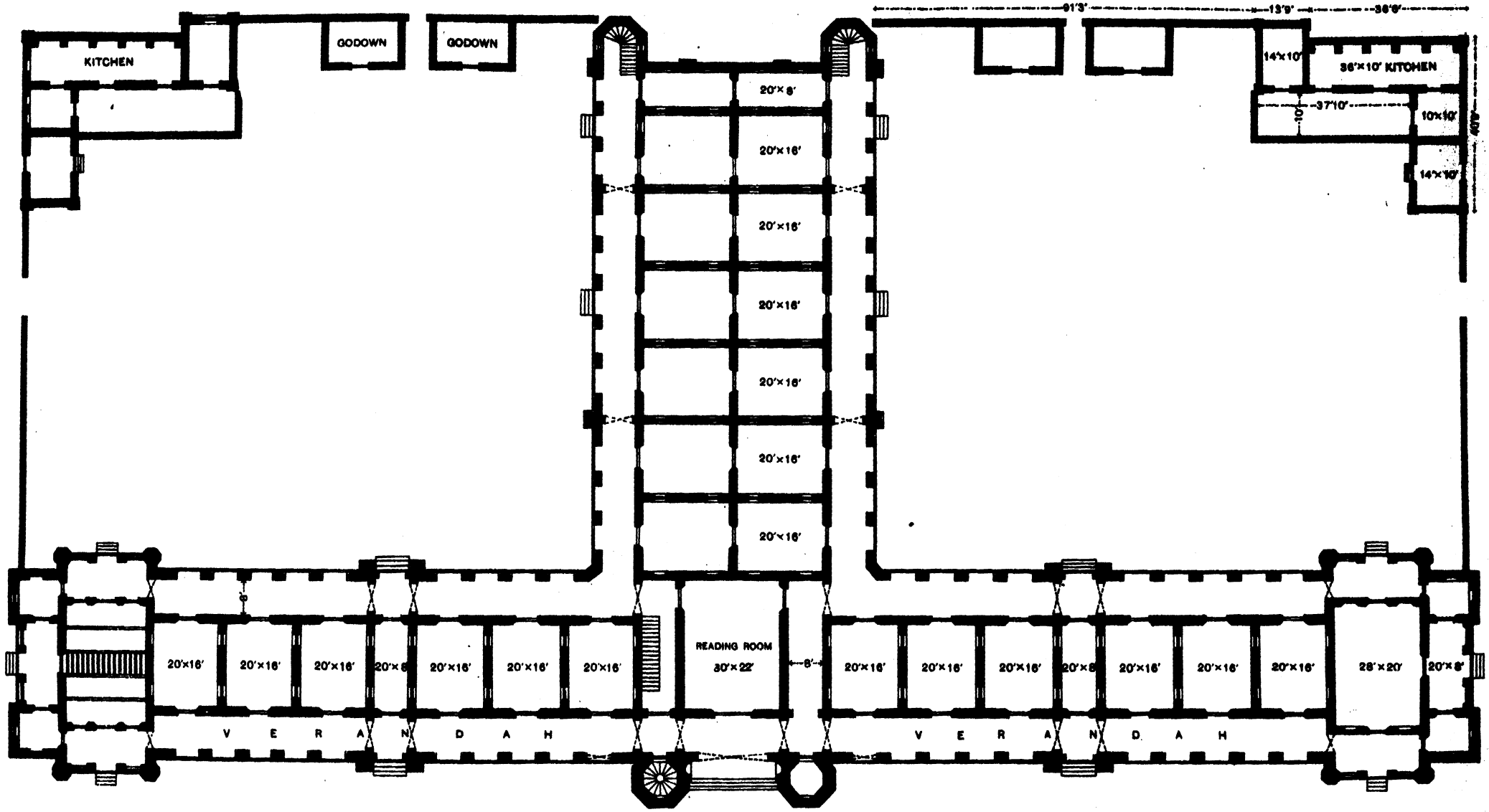


FRONT ELEVATION.

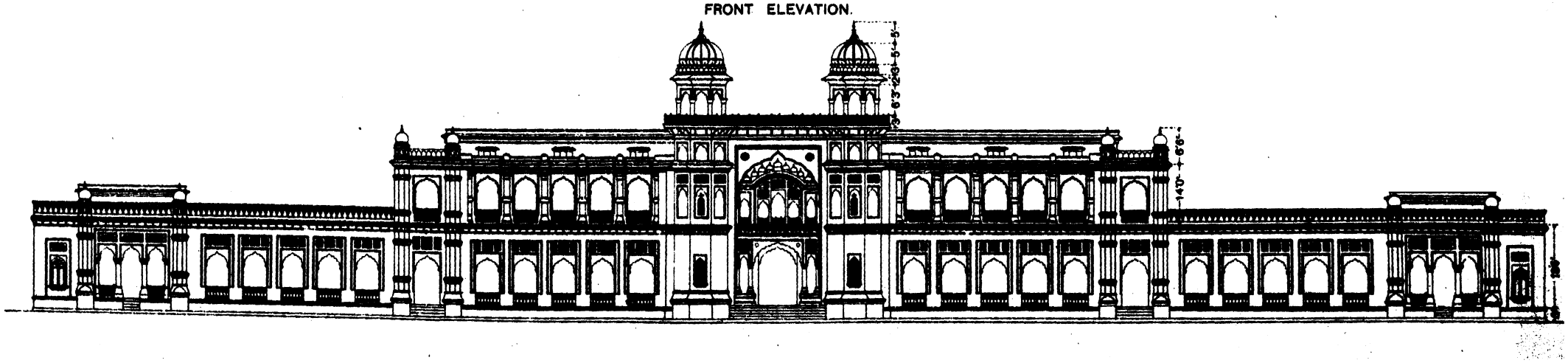
BOARDING-HOUSE, KHALSA COLLEGE, AMRITSAR.

Scale of Feet.

Feet. 10 5 0 10 20 30 40 50 60 Feet.



FRONT ELEVATION.



The Khalsa College Boarding House, Amritsar.

This institution consists of several buildings located over an area of 101·24 acres on the Grand Trunk Road at a distance of about 3 miles from Amritsar town on the Lahore side, and about 1½ miles from the railway station. The locality is free from all the impurities of a crowded city, the water is good and the climate dry and pleasant. The soil is sandy clay.

The buildings are commodious with high plinths and very picturesque in the oriental style of architecture, and are constructed chiefly in *pucka* brickwork with flat mud roofs on rolled steel joists. They were almost all designed by Sardar Bahadur Bhai Ram Singh of the Lahore Mayo School of Art and built under the supervision of the Public Works Department officers.

The grounds are extensive and well laid with metalled approaches from the Grand Trunk Road.

Accommodation for the boarders is provided in two boarding houses, one for the school students with 490 beds and the other for the collegiates with 250 beds. The school boarding house is a double storeyed structure with a frontage of 350 ft. which has an ornamental entrance in the middle with high domed towers projecting on each side of the gateway. In one of the towers there are spiral brick stairs leading up to the roof. The towers are protected with lightning conductors. The maximum height of the building is 42½ ft. excepting the towers which are 67½ ft. above ground.

The original shape of the boarding house was an inverted T, the front arms consisting of 12 rooms, each measuring 20 ft. by 16 ft. and placed in a single line of six on either side of the main entrance with 8 ft. wide verandahs on both sides and a bigger room 28 ft. by 20 ft. at each end. The projecting wing at the back has another 12 rooms of similar dimensions and placed end to end in two rows of six rooms with 8 ft. verandah at the sides.

The upper storey provides one large room 40 ft. by 22 ft. 4½ in. over the main entrance, 10 small dormitories of 20 ft. 4½ in. by 16 ft. 4½ in. size, and two similar sized rooms at the back for the superintendent. The remaining space has been left as open terraces for the boarders to sleep in the hot weather. The rooms are 16 ft. 4½ in. by 18 ft. high on the ground and first floors respectively. The floors are all paved with *pucka* bricks. The verandah arched openings have open "jali" brickwork for railings and the parapets are made of ornamental bricks with series of small arched openings.

There are eight kitchens with godowns for storing provisions attached to this hostel as also night latrines and two tube wells fitted with hand pumps to supply drinking water. There are also two masonry wells with Persian wheels, a bath room and a dhobi ghat.

The school hostel was constructed in 1892 at a cost of about Rs. 70,000.

Extensive additions, costing about Rs. 56,000, have recently been made to the boarding house in the shape of a two storeyed quadrangle providing accommodation for primary students and consisting of—

1 room	52 ft. 3 in.	by 20 ft.	}	on the ground floor and
2 rooms	20 ft.	by 20 ft.		
18 „	16 ft.	by 20 ft.		
2 „	20 ft. 4½ in.	by 20 ft. 4½ in.	}	on first floor
14 „	16 ft. 4½ in.	by 20 ft. 4½ in.		

with 8 ft. wide verandah on the inner sides. The rooms are 16 ft. high both on the ground floor and the first floor.

There are rooms for two teacher superintendents also on the first floor.

Light and ventilation have been amply provided by means of big glazed doors, ventilators and windows.

Adjacent to the kitchens there are two dining halls each measuring 40 ft. by 20 ft. by 16 ft. high which are used as dormitories, the boys dining either in the open or in the verandahs of the kitchens according to the weather.

There are also family quarters for the headmaster, the medical adviser (a retired senior hospital assistant) and 16 of the school teachers on the east side of the compound close to the school boarding house; as also a bunia's and confectioner's shop and outhouses for menials.

Married quarters for the clerical staff of the Honorary Secretary have also recently been added.

At a distance of about 150 ft. to the west of the school boarding house stands the dispensary and a contagious diseases ward which was erected in 1905 in memory of Sir W. Rattigan at a cost of Rs. 2,000.

Next to the dispensary and midway between and in line with the school and college hostels is the dharamsala with a spacious hall large enough to seat 500 boys for morning and evening prayers, the foundation stone of which was laid by Sir James Broadwood Lyall in 1892.

Beyond the dharamsala and at a distance of 250 yards from the school boarding house is the college boarding house which is similar to the original shape of the former in all details, and consists of—

2 rooms 28 ft. by 20 ft.
21 ,, 20 ft. by 16 ft. } on the ground floor and

1 room 10 ft. by 22 ft. 4½ in.
12 rooms 20 ft. 4½ in. by 16 ft. 4½ in. } on the first floor.

This building was constructed in 1890 and is the gift of the Patiala officials and subjects in commemoration of the assumption of the government of his state by His Highness the late Maharaja Rajindra Singh Mahindar Bahadur.

The lower storey of this boarding house is at present used for holding classes which will be removed in the course of about six months to the new buildings for college and school which are now under construction and will cost about 5¼ lakhs of rupees to complete.

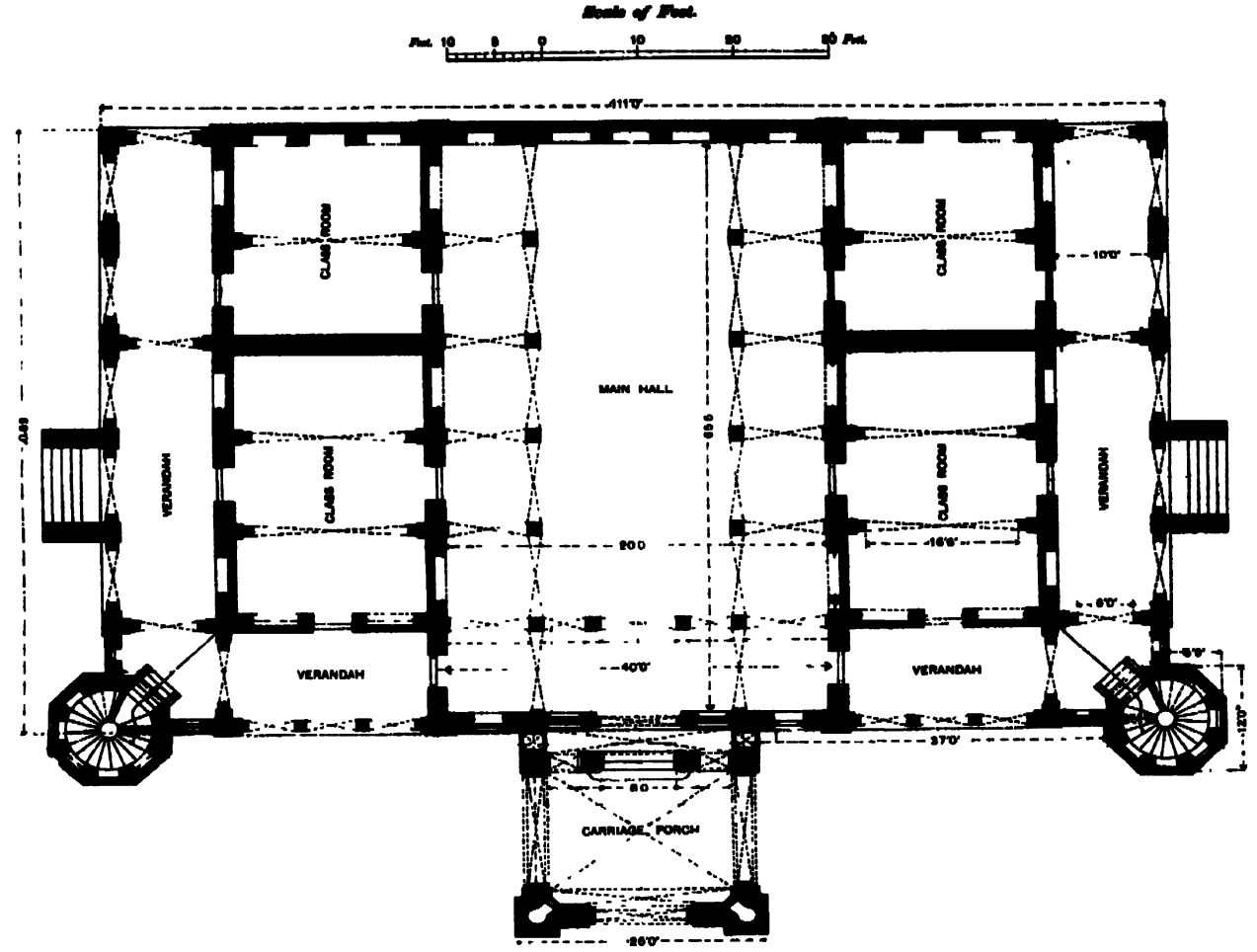
On the west side of the premises there are quarters for four professors, the boarding superintendent, the college clerk and the mistry, and also the bullock shed and a high level masonry well fitted with a bath room for the college boarders.

The principal's residence stands on the south-west corner of the compound with a nice garden and a well in front.

The college laboratory is a detached structure lying at 113 ft. to the west of the main building, measuring externally 111 ft. 4½ in. by 49 ft. by 27 ft. high and consisting of a gallery room 28 ft. by 27 ft. 6 in. by 22 ft. 3 in. fitted with tables, fume closets, etc., a balance room and a dark room. Gas and water are also laid and are supplied from a generating plant and a tube well, provided for the purpose, in a separate little house.

The boundary of the compound is marked by a wire fence with two brick entrances facing the Grand Trunk Road and a post office built at the south-east gate.

ST. STEPHEN'S COLLEGE, DELHI.



St. Stephen's College, Delhi.

St. Stephen's College, designed by Sir Swinton Jacob of Jaipur, is a typical example of modern Indian Saracenic architecture.

The college is built of Delhi stone with red Agra stone facings. This gives the appearance in colour of bluish grey combined with red. The general colour scheme has been preserved in the boarding house and also in the new science buildings. But in the latter for the sake of economy, brick has been used instead of Agra stone.

The main block of the college, shown in the accompanying plan and elevation, contains a large central hall which runs to the full height and length of the building, with a *dais* at the end opposite to the porch. The hall is flanked on either side by lecture rooms in two storeys. The lecture rooms open on the inside into galleries which run on both sides of the hall and also along the front of the hall over the main entrance. Only the back of the hall, where the *dais* is, has no galleries. On the outside the galleries run into verandahs on both storeys and thus enclose the college with verandahs on three sides.

The columns supporting the gallery arcade also support the transverse arches on which the roof rests at a height of 40 ft. from the floor. The roof itself is flat, with a somewhat high parapet. The hall is divided by the columns and arches into six bays. Including the space covered by the galleries, the hall measures 65 ft. 6 in. by 40 ft. The transverse arches are met by others spanning the lecture rooms on either side, except where the thrust is taken by the partition walls. These render the rooms very easy to subdivide when need requires. In the earlier days of the college, many small class rooms were arranged, but at the present time, owing to the rapid increase of numbers it has been found necessary to open up the smaller class rooms and make two larger ones on each side on each floor. One of these rooms on the ground floor to the left forms the college reading room, but as there is not space in the room itself for more than those books which are in frequent use, the hall itself is provided with book cases on the ground floor and on the upper floor. The larger class rooms (20 ft. by 30 ft.) now accommodate sixty students without crowding; the smaller (20 ft. by 22 ft.) accommodate forty students. At one corner of the verandah on the left side of the hall, is a small room for the staff and on the opposite side a similar small room for M. A. students. The college office is on the upper floor on the right hand side, and the principal's room is situated above the carriage porch.

Externally the façade is specially noteworthy. The porch in front is as high as the building with a large clock in the centre which was presented by the old students of the college. At either corner is an octagonal stair turret. These are surmounted by cupolas on open arches. The staircases are spiral expressed externally by an ascending series of open windows.

The building is now illuminated by electric light, and electric punkhas are gradually being installed to replace the old swinging punkhas. The *dais* of the hall is fitted up with lights and curtains for the purposes of acting.

The hall is built for a college numbering between 150 to 200 students. It is the present intention of the governing body not to exceed that number, and the class rooms and science rooms have been arranged with that object in view. The college has from the first aimed at intensive work and close personal contact with the students, rather than at large numbers.

The science block of the St. Stephen's College, Delhi, is a separate building situated at the back of the main building and to the south at a distance of 18 ft. and to the west at a distance of 36 ft. from it. It has a verandah 8 ft. broad facing the main building and consists of the following rooms :—

(1) A lecture room 20 ft. by 20 ft. for physics containing a gallery to seat 24 students and fitted with water and gas. (2) A dark room 10 ft. by 8 ft. (3) A physical laboratory 40 ft. by 20 ft. fitted for 48 students. (4) A store room 17 ft. by 20 ft. (5) A balance room 18 ft. by

17 ft. (6) A lecture room for chemistry with the usual fittings. (7) A chemical laboratory 36 ft. by 20 ft.

The gas supply is from a Mansfield oil gas generator with a gasholder of 300 cubic ft. capacity. The necessary pressure for the water is obtained from a tank of about 50 cubic ft. capacity placed at a height of 18 ft. outside the building. A workshop 30 ft. by 12 ft. is under construction.

The cost of the block, including the workshop, will amount to about Rs. 16,000. The cost of the furniture and fittings including the gas apparatus was Rs. 8,500.

The main block of the college hostel was carried out from the designs of Mr. W. Arundell, M.S.A., and is constructed of the same material and in the same architectural style as the college itself. This block, which contains a front and two wings with an open back, is built to accommodate 22 students. The front has an upper floor. The whole of this block was built at a time when the importance of boarding house extension was not fully realised. The scale was too small, and when extension was necessary it was found more feasible to build a separate block than to continue the original design.

The second block of buildings, called the Wright Memorial, is an unpretentious building. It is however well constructed for students' quarters and is made up of 24 single rooms. It has been found by experience that single rooms conduce to health, discipline and good work. No more rooms for students to occupy in common will be built in future.

A temporary boarding house is now made out of a house which stands in the corner of the hostel compound. This was originally built for the superintendent and vice-principal, who lived there with his family. It is now used to accommodate 12 boarders. A part of this will in all probability be pulled down when funds are available and the Wright Memorial block with its single cubicle system will be extended in this direction. Plans are made out by which the present boarding accommodation of 58 students can be raised to that of 80 students.

Facing the Wright Memorial block is the Maitland house, a solidly constructed bungalow containing six rooms, with necessary bath rooms and dressing rooms. This house has three doors opening out into the boarding house compound and is an integral part of the boarding house. It is occupied by three English professors who now have separate charge of the different divisions of the hostel and act as superintendents of their own students.

At the lower end of the boarding house compound are a set of servants' quarters, a row of latrines constructed on sanitary principles, a set of eight bath rooms, and a series of cook houses and store rooms for different students' messes.

Further students' quarters are at present arranged for in the upper floor of a neighbouring building, a college professor occupying rooms in the same block of buildings. The rooms are on hire and are not well suited for purposes of study. It is hoped that further extension of the college hostel may in the near future make this lodging accommodation of students altogether unnecessary.

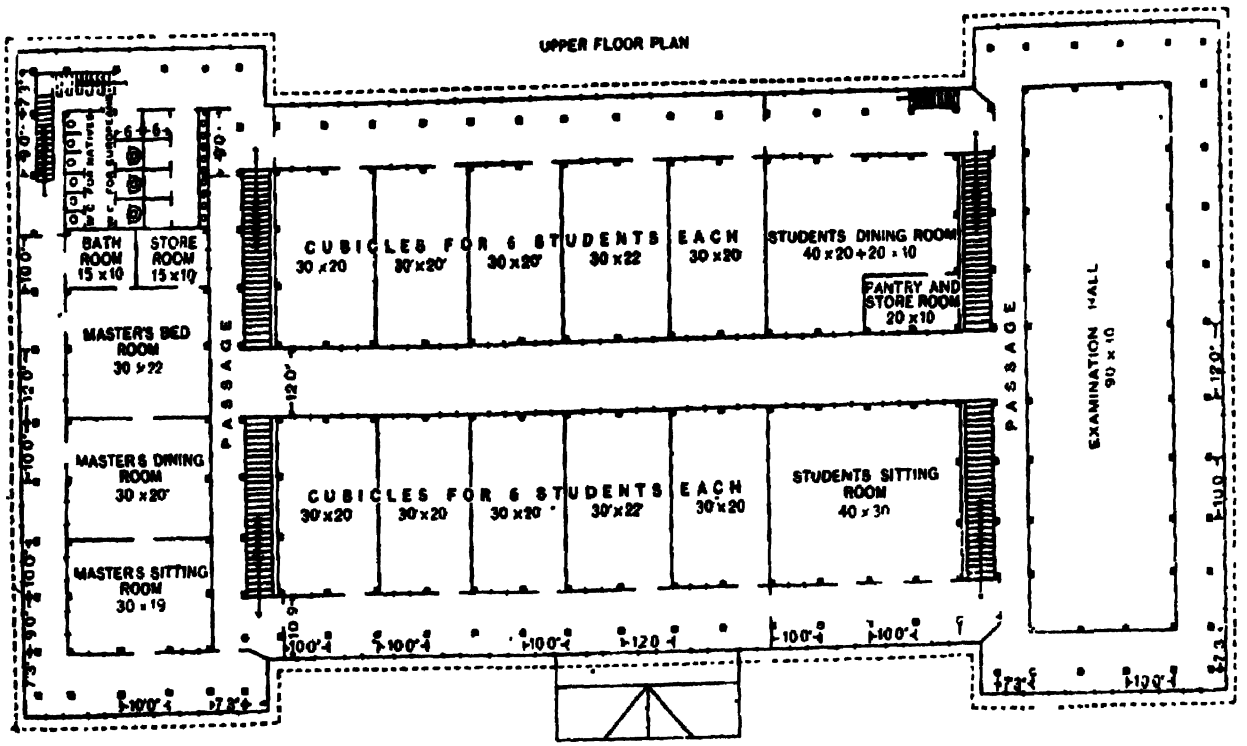
The college has been fortunate in obtaining from the municipality two playing fields over 4½ acres in area, within three minutes' walk from the college, admirably suited for games.

The total cost of the buildings alone was over 1½ lakhs.

BOARDING-HOUSE RANGOON COLLEGE.

Scale of Feet.

FEET 20 10 0 20 40 60 FEET



Government College, Rangoon.

The Rangoon College, opened in 1885, originated in the development of the Government High School. At its opening it was placed under the management of the Educational Syndicate, the members of which were nominated by the Government of Burma who bore the entire cost of the institution. In 1904 the management was transferred to Government and in 1909 a governing body was appointed to take over the general management in accordance with the provisions of the Indian Universities Act of 1904; but the college remains a Government college and part of the Government educational system in Burma. The college occupies a site nearly 7 acres in area (540 ft. by 560 ft.), the whole of which is devoted exclusively to college purposes. The present building erected in 1901 faces due south fronting a wide street with the new General Hospital opposite to it. On the north of the site and separated from it by a line of railway is the maidan or military parade ground, to the east is the Government collegiate school and to the west a large convent.

The climate of Rangoon is of the type common to all places near the sea and exposed to the south-west monsoon winds, *i.e.*, there is a season of heavy rain from towards the end of May to October (average rainfall 90—100 inches), a cool season from November to February and a hot season from February to May. The range of temperature during the year is between 60° F. and 100° F. and in a college lecture room during the working hours the temperature is seldom below 75° F. or above 90° F.

The building is a two storeyed one, the lower storey being brick and the upper storey being timber, a type of building very common in Rangoon. It consists of a central block with a short wing at either end separated from the central block by passages 12 ft. 6 in. wide in which are the staircases to the upper floor. This central block is 145 ft. long—has a passage 11 ft. wide down the middle of its entire length, on either side of which are lecture rooms. There are four rooms 40 ft. by 30 ft., two rooms 30 ft. by 30 ft. and two rooms 30 ft. by 20 ft., all these being 15 ft. 6 in. in height. The east wing is a large hall 90 ft. by 30 ft. by 38 ft.—the west wing contains three rooms 40 ft. by 30 ft., 30 ft by 30 ft., and 30 ft. by 20 ft., respectively. The floors of all the rooms on the ground floor are of concrete except that of the examination hall which is tiled. The rooms are all well lighted, having four, three or two large windows according as their lengths are 40 ft., 30 ft. or 20 ft.

Seating and arrangement of benches.—In all lecture rooms the system is the same, there are two rows of benches each 11 ft. in length with a passage of 4 feet down the middle of the room and narrow passages along the walls. For ordinary lecture work each bench seats six students comfortably—a large lecture room holds 17 benches and a small one 12, thus seating without difficulty 102 and 72 students, respectively. The benches are all of exactly the same type - a desk with a form rigidly attached and a small open shelf under the desk for books,—nothing in the shape of lockers is provided. The desks are large enough for convenient writing, being 12 inches in width, on the slope. A lecturer is provided with a platform about 20 ft. by 7 ft. and raised 1 foot above floor level, thus giving ample accommodation for the lecturer's chair, table and two blackboards. The desks are all on the same level except in the large lecture room in the west wing which forms the science lecture room; and the benches are there raised as in a lecture theatre.

Laboratory.—The chemical laboratory is an annexe at the back of the main building. It is a well lighted and well ventilated room 43 ft. by 38 ft. 6 in., 12 ft. in height at the sides and 24 ft. 6 in. at the centre—it has roof lights and ventilation. There are three double benches 24 ft. long, taking 12 students each and two side benches taking two students each; in all the accommodation is for 40 students. Gas and water are laid on. There is connected with the laboratory a small sulphuretted hydrogen room 16 ft. by 8 ft., a balance room 16 ft. by 16 ft., a dark room 16 ft. by 12 ft., and a store room 16 ft. by 20 ft. The rooms on the ground floor of the

west wing afford two lecture rooms (one fitted as a theatre) and a preparation room. Gas and water are laid on throughout. A sum of Rs. 2,000 is allotted for chemicals and apparatus and probably this will have to be increased in the near future. There is no other science subject taught but probably physics will be added very shortly.

Library.—The college library is not a very large one—containing in all something under 2,000 books. The students, however, make considerable use of the Barnard Free Library which is within 100 yds. of the college. There is a Government grant of Rs. 750 per annum for books and a further sum of about Rs. 450 from the subscriptions of students is available.

Gymnasium—There is a large gymnasium 80 ft. by 40 ft.—well lighted and fitted with all the usual equipment of such an institution. The students in the college hostel have to attend twice a week. The instruction is given by a non-commissioned officer of the British regiment stationed in Rangoon.

Boarding Department.—The first floor of the central block is used as a college hostel, where there is accommodation for 72 boarders distributed over 12 rooms each 30 ft. by 20 ft. and 15½ ft. high at the sides and 22½ ft. in the centre. Wide verandahs along the north and south sides of the building give access to these rooms. A dining room and pantry occupy a space 40 ft. by 30 ft. The upper floor of the west wing consists of quarters for the superintendent of the boarding department and a sick room for students.

Playing fields.—There is a small field 80 yds. by 60 yds. in the college compound and the college has year by year a portion of the military parade ground lent to it as a football and hockey field. There are one cement tennis court and two mud courts, the latter being serviceable only in the dry season.

Accommodation for staff.—There is a good house in the compound for the principal who occupies it rent free, there are quarters for the superintendent of the boarding department and there is a small house occupied at present by the assistant to the science professor.

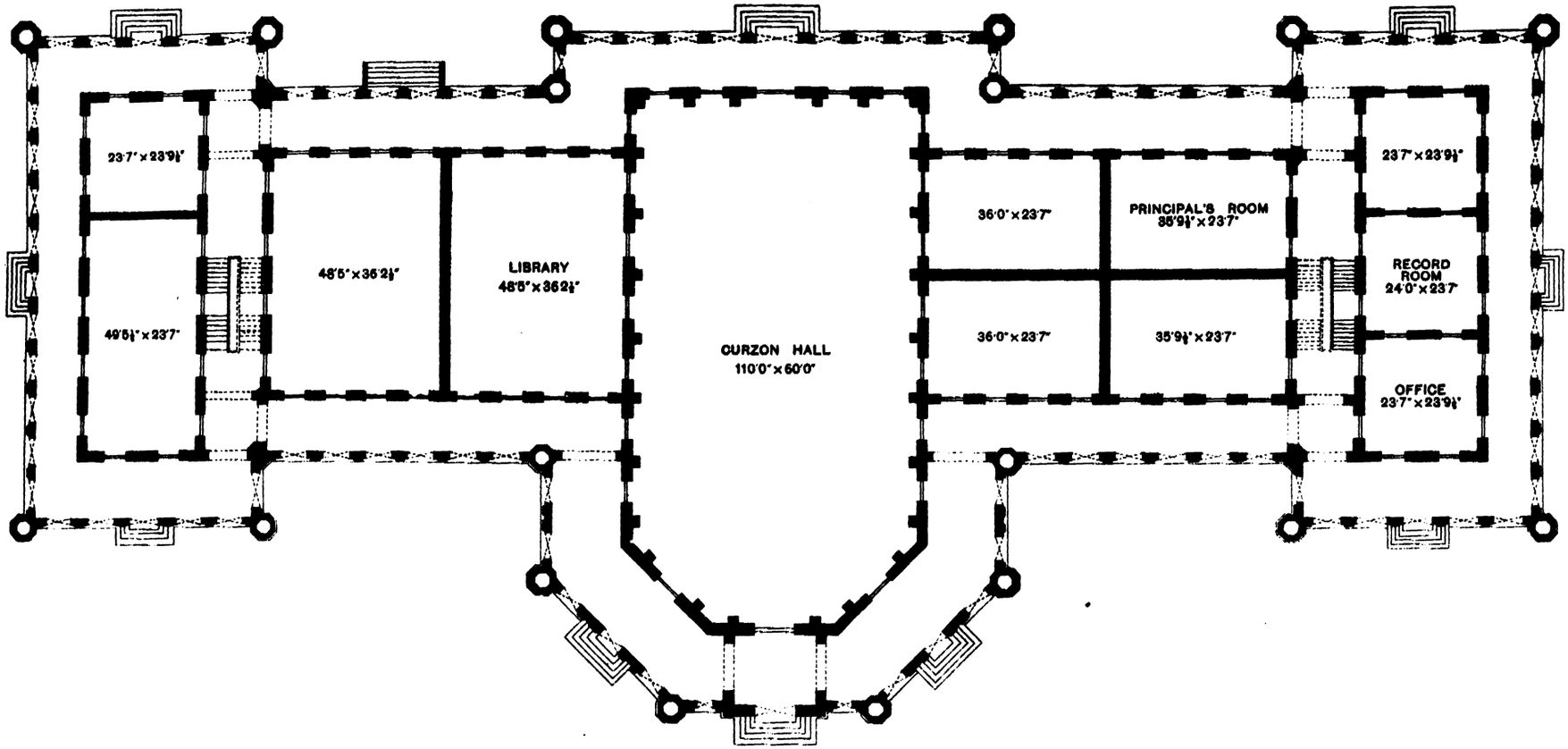
All the buildings have been designed and built by the Public Works Department and their recorded value in 1908 was Rs. 2,06,408.

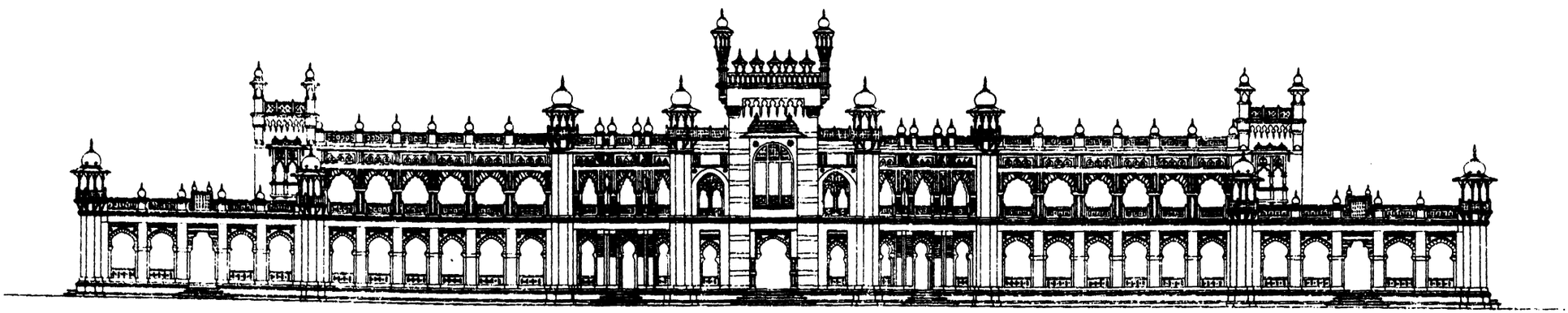
GOVERNMENT COLLEGE, DACCA.

Scale of Feet.

10 5 0 10 20 30 40 50

GROUND FLOOR PLAN.





FRONT ELEVATION.

GOVERNMENT COLLEGE, DACCA.

Dacca College.

The illustration represents the principal block of the group of buildings, recently erected for the accommodation of the Dacca Arts College and the Ahsanullah School of Engineering, in a spacious compound of about 45 acres. The group includes, besides this building, another for the school of engineering, a science block, the college hostel and the school of engineering hostel. The first three buildings stand in a line, facing the north. They are all built in the same semi-Saracenic style of architecture, which is also, though in a much plainer manner, reproduced in the hostels. The material is brick, the ornamentation being of plaster, in some cases laid over expanded metal. The roofs are of reinforced cement.

The block illustrated is the most western of the three buildings mentioned above. It contains the Curzon Hall, which is not yet finished, and which will eventually form the large meeting and examination hall of the college. This hall rises above the rest of the building. This arrangement permits of a row of clerestory windows just below the roof, and is very necessary for proper lighting, since the apertures in the long side walls look direct into the wings. Its area is 110 ft. by 60 ft. The height (44 ft.) is broken by two galleries at heights of 17 ft. and 30 ft. respectively from the floor. These galleries are 8 ft. broad and are supported by 20 pillars, which run up from floor to roof. The floor will be of marble blocks. The galleries are surrounded by open balustrades. The walls and pillars will be decorated with plaster moulding picked out in colours. The ceiling will be of stamped steel, white and patterned.

Other rooms extend to the east and west of the Curzon Hall. With the exception of the library, these rooms are arranged in two storeys. The height of the ground floor rooms is 17 ft., that of the first floor rooms 13 ft. Exclusive of the library, there are upon the ground floor seven class rooms, professors' common room, and three office rooms. The first floor contains six class rooms. These six and two of those on the ground floor are capable of being thrown into four very large class rooms, each measuring 50 ft. by 36 ft., the partitions being of wood and removable. This has the advantage of permitting the size of class rooms to be modified to the size of classes and also of allowing the rooms to be used for examination purposes. The interior of the rooms is white-washed. The floors are of Indian patent stone.

The library is a large single room running up through both storeys. The dimensions of this room are 50 ft. by 36 ft. A gallery 5 ft. wide runs round it at a height of 17 ft. from the floor. This gallery is used for the reception of volumes which are not likely to be frequently referred to, but whose inclusion in the library is necessary. The block contains in all 19 rooms.

It may be added that the building is entirely surrounded by 10 ft. verandahs on both floors. It is lighted entirely by doors, with the exception of small apertures immediately under the ceilings of the class rooms and offices. It might have been preferable to have no verandahs on the northern side and to have had windows there rather than doors. The verandah arches, moreover, are of a somewhat massive description, and not always conveniently placed as regards the doors, and cut off a certain amount of light. Nevertheless the rooms, with the exception of one class room, are very fairly well lighted, though in this respect supposed architectural considerations have perhaps been allowed slightly to outweigh utility. It is also apprehended that during the hot weather, the northern rooms will be somewhat cut off from the prevailing breeze. (In this part of India, a single line of rooms, if properly roofed and facing in the right direction, will always remain cool.) Hitherto, however, the building has been occupied only during the rains and the cold weather. The class rooms are all being fitted with electric fans, and it is expected that this will keep them at a comfortable temperature.

The main building cost about Rs. 1,99,050, and the Curzon Hall about Rs. 1,07,423 but exact figures are not yet available.

Dacca College Hostel.

This building is included in the compound of the Dacca College, and is situated just to the south of the central block last described. It consists of a quadrangle, with two family residences for professors on the southern side, and rooms for boarders, arranged in two storeys, along the remaining three sides. The hostel is constructed to hold 206 boarders. The rooms are of three kinds:—42 rooms, 20 ft. by 14 ft. 4 in. to hold four boarders, four rooms, 10 ft. by 14 ft. 4 in. to hold two boarders, 30 cubicles, 6 ft. 6 in. by 14 ft. 4 in., to hold one boarder. The height of the rooms is 13 ft. 6 in. on the ground floor, 13 ft. 3 in. on the first floor.

The rooms have no external verandahs; but there is a verandah on the side of each of the three blocks facing the quadrangle. The windows are 5 ft. 6 in. by 4 ft. and are placed 1 ft. 6 in. from the floor level, the top of the windows being thus 6 ft. 6 in. from the ceiling on the ground floor and 6 ft. 3 in. on the first floor. This arrangement has one disadvantage, in that it tends to make the boarders shut the windows at night. Were the windows placed higher, they would be more likely to be left open. Each of the larger rooms has two windows. Each of the smaller and each of the cubicles has one window. Lighting and ventilation are good. The windows are all on the outside, and are protected by sunshades, which, if anything, add to the appearance of an otherwise very plain exterior.

The buildings are of red brick, roofed and floored with reinforced cement. The interior walls and ceilings are whitewashed. The materials are not such as to necessitate any special provision in case of fire.

The verandahs along the interior sides of the three hostel blocks are supported on Saracenic arches and are 4 ft. 6 in. in width. The only external verandahs are connected with the professors' houses. These quarters have the great advantage of supplying private family residences to Indian professors, who are thus enabled to exercise strict supervision over the hostel without the inconvenience entailed by separation from their families.

A special feature is the inclusion of a certain number of cubicles, divided by wooden partitions about 8 ft. in height. These rooms are particularly popular, and combine the privacy which college students generally regard as essential for their studies with free ventilation and greater ease of supervision.

Another feature is the means whereby special sanitary arrangements are provided for use during the hours when the gates are closed. These are situated in the two northern corners, the blocks being separated by a slight interval, are locked up during the day, and are surrounded by walls which complete the rectangle, so that access and exit are impossible save by the doors.

The quadrangle is occupied by three tennis and three badminton courts.

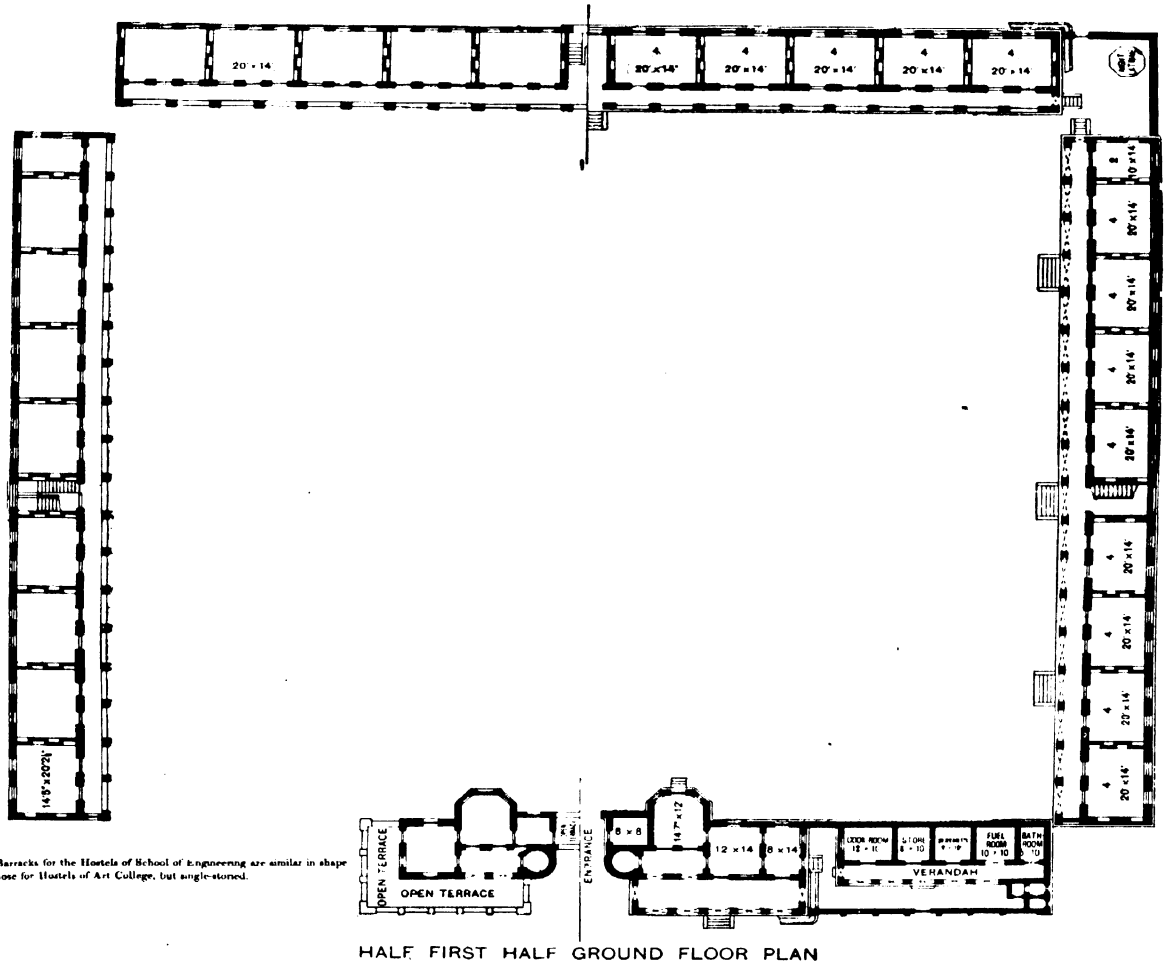
The whole building is being fitted with electric light, and a supply of filtered water is laid on.

There are four grated metal gates in the hostel, the principal entrance being between the houses of the professors.

The sanitary arrangements for ordinary use are situated in the spacious compound outside the hostel gates. The kitchen and dining halls are also situated outside the hostel and provide for both Hindus and Muhammadans.

A hospital will be erected together with a house for the assistant civil surgeon in charge of the hostels.

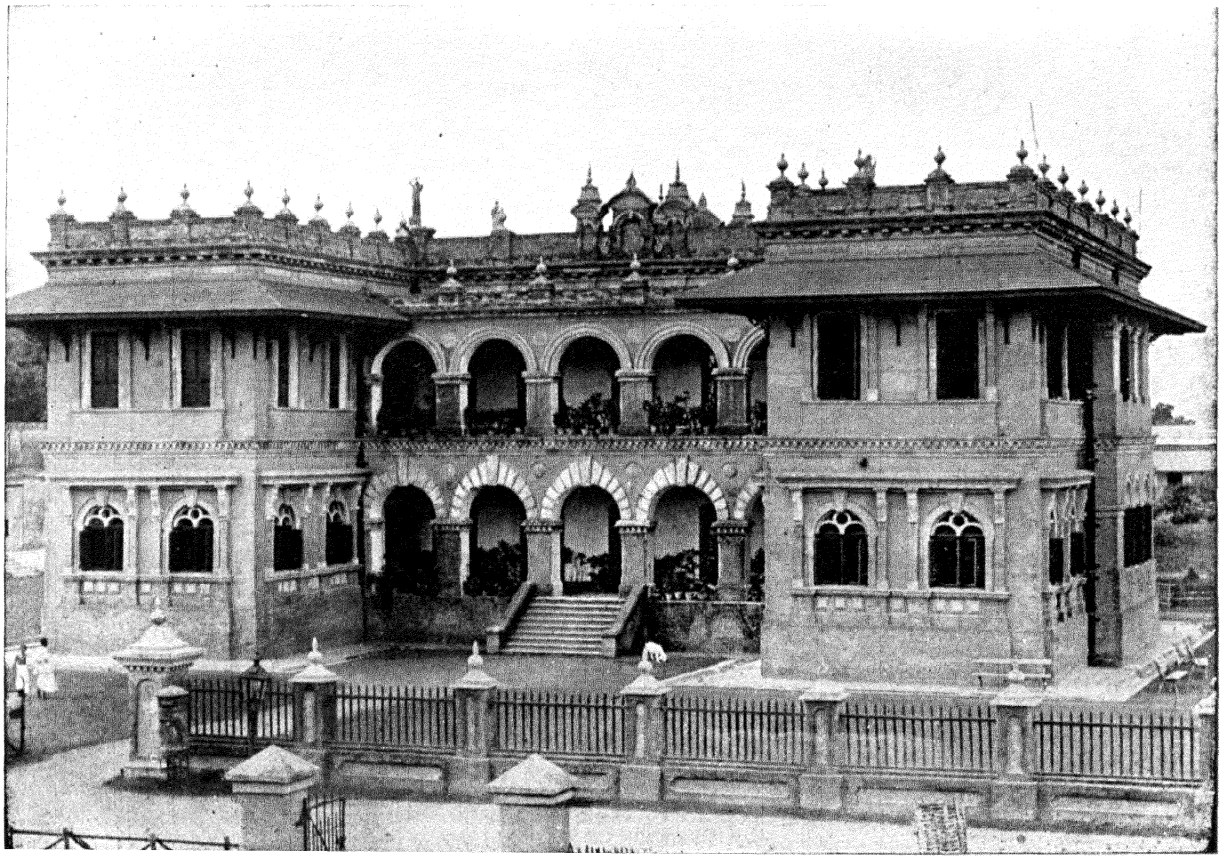
The hostel cost Rs. 1,22,617 and the two professors' quarters Rs. 31,540.



Note.—Barracks for the Hostels of School of Engineering are similar in shape and size to those for Hostels of Art College, but single-storied.

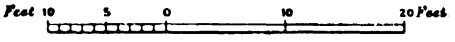
HALF FIRST HALF GROUND FLOOR PLAN

DACCA COLLEGE HOSTEL.

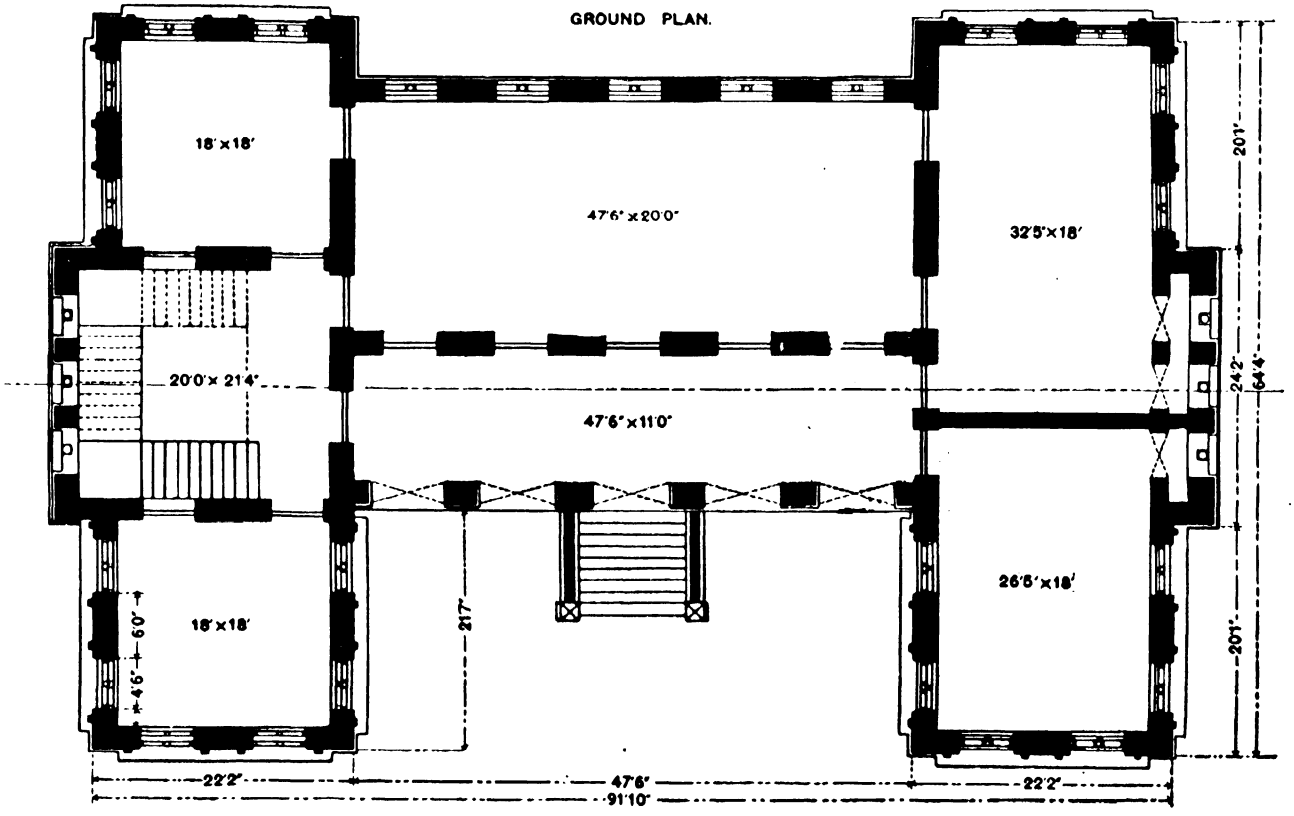


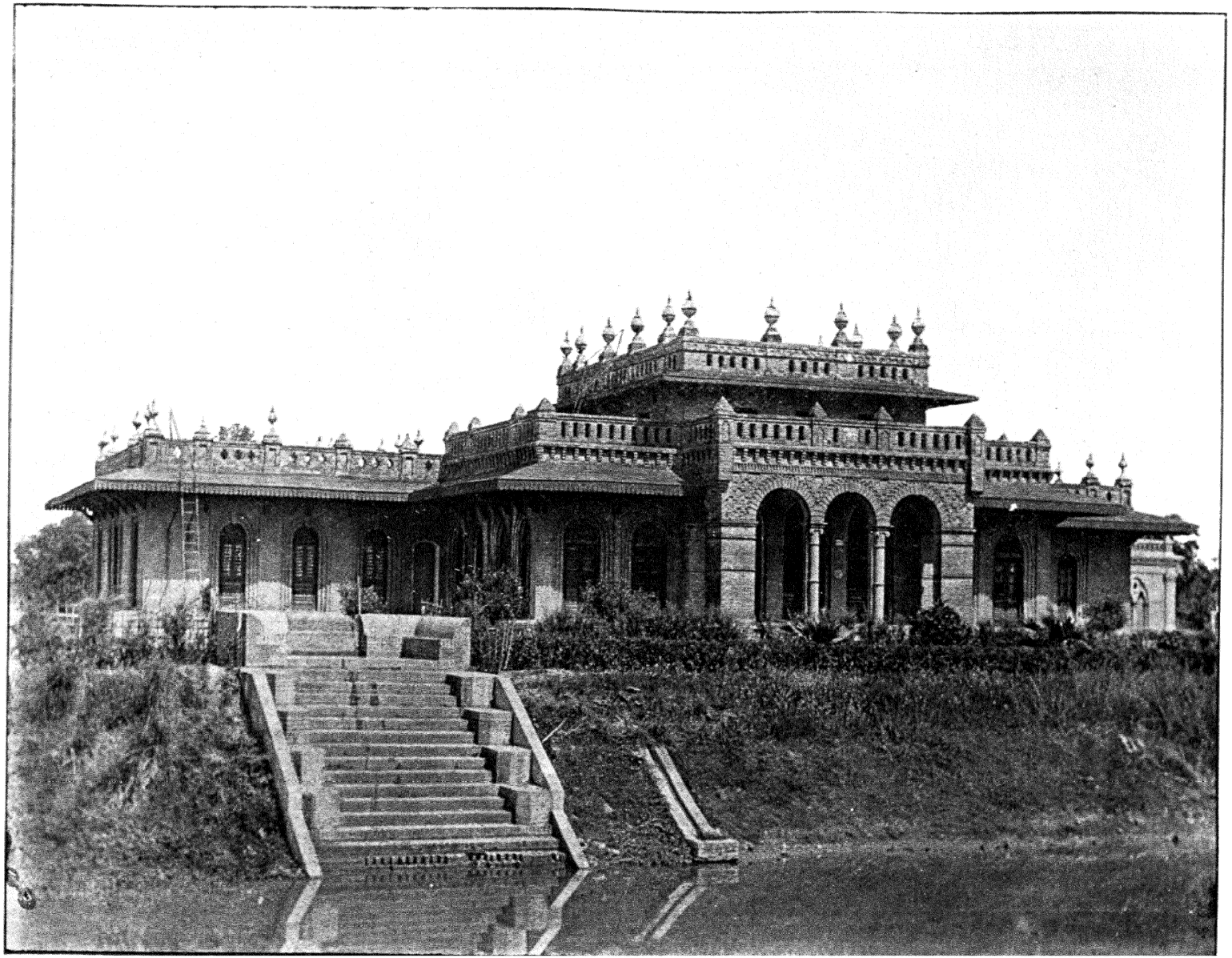
GOVERNMENT COLLEGE, RAJSHAHI.

Scale of Feet.



GROUND PLAN.





PHYSICAL LABORATORY, GOVERNMENT COLLEGE,
RAJSHAHI, EASTERN BENGAL.

Rajshahi College.

The first photograph represents the Central College building which was erected in 1884. It stands in a fine compound of about 100 bighas. It accommodates only the Arts classes of the college. There are separate blocks for the teaching of chemistry and of physics, and a large common room with other class rooms attached to it, is nearing completion.

The building is of two storeys, each containing five rooms. The central room on each floor is 48 ft. by 20 ft. The height of the rooms is 15 ft. in the ground floor and 17 ft. in the first floor. The central rooms are used for the intermediate classes in general subjects. The side rooms on the ground floors are used for other class rooms. The upper floor contains, besides class rooms, the principal's office, professors' common room and the library. All these rooms (save the library) are amply sufficient for their purpose.*

There is a verandah 11 ft. wide on the northern side only of the central portion of the building. This necessarily shuts out a certain amount of light. Teakwood sunshades, 7 ft. wide, protect the windows of the upper floor. As the temperature in Rampur Boalia, where the college is situated, does not rise very high, the addition of verandahs is not necessary and the building is sufficiently cool. The windows are generally 3 ft. from the floor and 7 ft. from the ceiling, and are generally 6 by 4 ft. The outside of the building is of brick, stone and terra-cotta and is surmounted by finials and statues of the last-mentioned material. The inside is whitewashed. There is a terraced roof and the materials are sufficient to withstand heat. The floors are of stone slabs. The rooms amply accommodate the maximum number of students at present in the classes. But it is now found necessary to provide further accommodation for classes in different subjects and for common rooms, etc.

The compound is enclosed by railings save at the southern end, where a large tank has recently been filled in to form a playground.

The college is a specimen of the type of architecture largely used in public buildings in Eastern Bengal districts. The number of rooms is now insufficient for the growing needs of collegiate instruction, but these wants are supplied, or are being supplied, by the subsidiary buildings.

* Since this was written, the numbers have largely increased. The rooms are now somewhat crowded.

SCHOOLS FOR BOYS

HIGH SCHOOLS

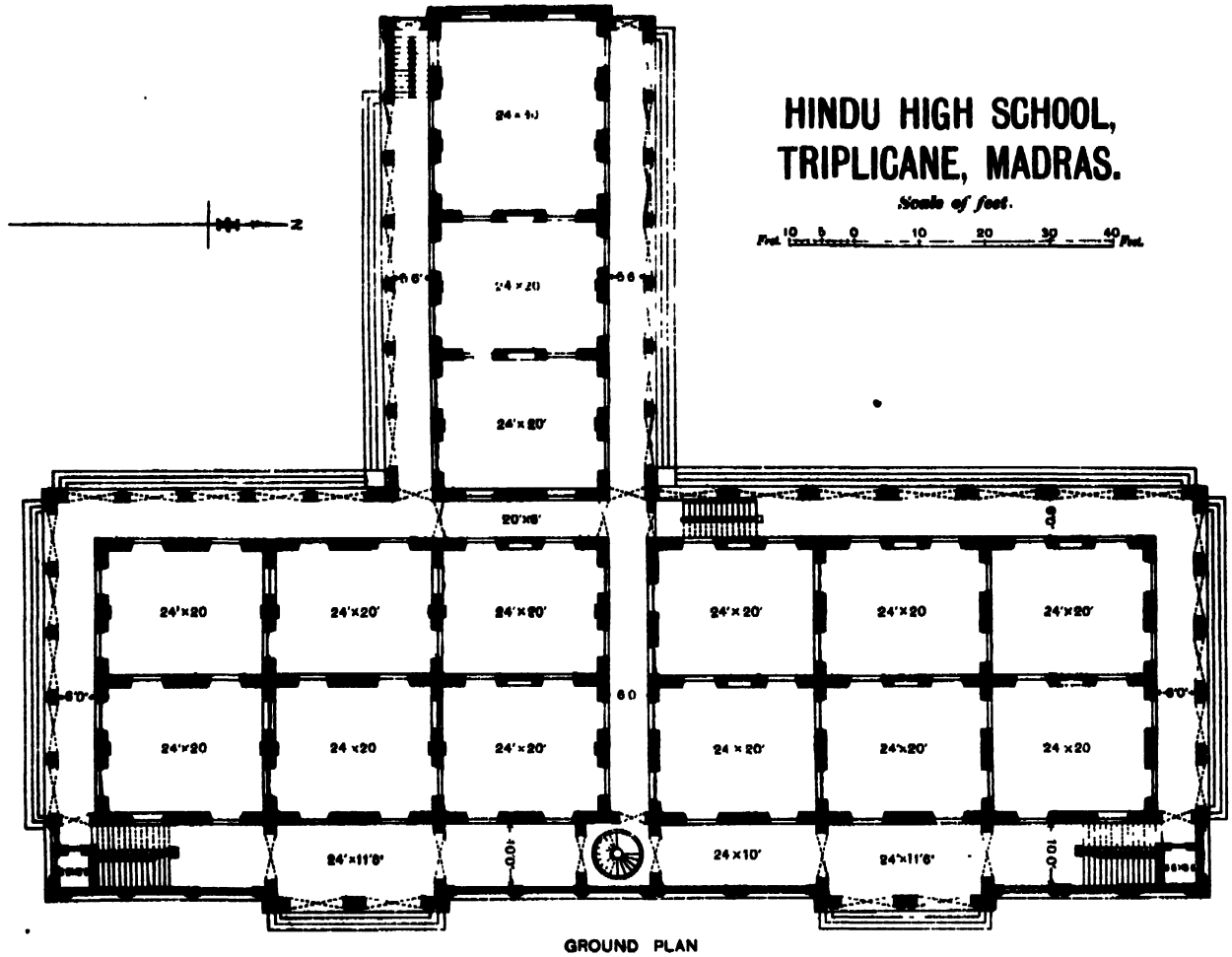
MIDDLE SCHOOLS

ELEMENTARY SCHOOLS

HINDU HIGH SCHOOL, TRIPLICANE, MADRAS.

Scale of feet.

Feet. 10 5 0 10 20 30 40 Feet.


24 x 20
24'x20'
20'x6'
24'x20'
24'x20'
24'x20'
24'x20'
24'x20'
24'x20'
24'x20'
24'x20'
24'x20'
24'x20'
24'x20'
24'x20'
24'x20'
24'x20'
24'x20'
24'x20'
24'x11'6"
24'x10'
24'x11'6"
6'0"
6'0"
6'0

The Hindu High School, Triplicane.

The Hindu High School, Triplicane, is located in a building specially constructed for it at a cost of nearly ₹90,000. A third of this amount was contributed by Government as a building grant and the balance was met by the school committee from their accumulated savings.

The foundation stone was laid by Dr. D. Duncan, M.A., D.Sc., the then Director of Public Instruction, Madras, in 1895. The new building was opened by His Excellency Sir Arthur E. Havelock in 1898.

It is situated in a very thickly populated part of Triplicane, and is in a street about half a mile in length but not sufficiently broad to give a view of the building to do justice to it. The plinth of the building is only 3 ft. above the level of the street on the east side and is almost on a level with the ground on the west. The building is in the form of a T, facing east by south, and consists of two blocks, the main building running north to south, and measuring 170 ft. by 60 ft., and a wing measuring 80 ft. by 36 ft. running at right angles to the main building from about the middle of it.

Besides these two blocks there are two open spaces 88 ft. by 50 ft. and 75 ft. by 70 ft., one on each side of the wing, and two other small open spaces, one to the south of the main block and the other to the west of the wing. The building having been erected in a thickly populated part of Triplicane, it is impossible to obtain more open ground; the school has, therefore, no playground of its own, and the two small spaces at the sides of the wing are used as the playground and for gymnastic exercises.

The main building consists of two storeys, while the wing contains three storeys. There are on the whole twenty-seven rooms for holding classes and one large hall 75 ft. by 42 ft. by 18 ft. for examinations. Twenty of these rooms are 24 ft. by 20 ft. by 16 ft., three are 30 ft. by 24 ft. by 13 ft., and four are 20 ft. by 20 ft. by 16 ft. There is a spacious front verandah 12 ft. wide throughout the length of the building and small verandahs 6 ft. wide round the rest of it, supported by large arches from the ground floor and by small arches on the second and third floors. There are two broad flights of stairs, one at each end of the front verandah, a spiral wooden staircase in the centre, a rather narrow flight of steps on the south side of the west end of the wing, and another at the northern corner of the building on the west side. The walls are constructed of stock bricks in chunam with tar pointing outside and chunam plastering inside. The ground floor is paved throughout with Cuddapah stone slabs with cement pointing, and the other floors are plastered with cement and marked into squares. The roof, which is of flat terracing throughout, except over the hall, is supported on iron girders and teakwood joists. The hall has a roof covered with Mangalore tiles and supported on iron trusses and wooden joists.

Good ventilation and sufficient light have been provided throughout the building by a number of large doors, windows and ventilators. Each room is furnished with seats for 40 boys, the maximum strength of a class under the educational rules, and a dais for the class master. Within the rooms seats for the boys are arranged in two rectangular blocks in front of the dais with a small passage way between and also around the blocks for the boys to move out.

The biggest room on the ground floor is used as a science lecture room and is fitted with galleries to accommodate 80 boys, and with a large table in front on which to conduct the experiments in physics and chemistry. The room next to it is used as a drawing class room. It is fitted with blackboards all round the walls.

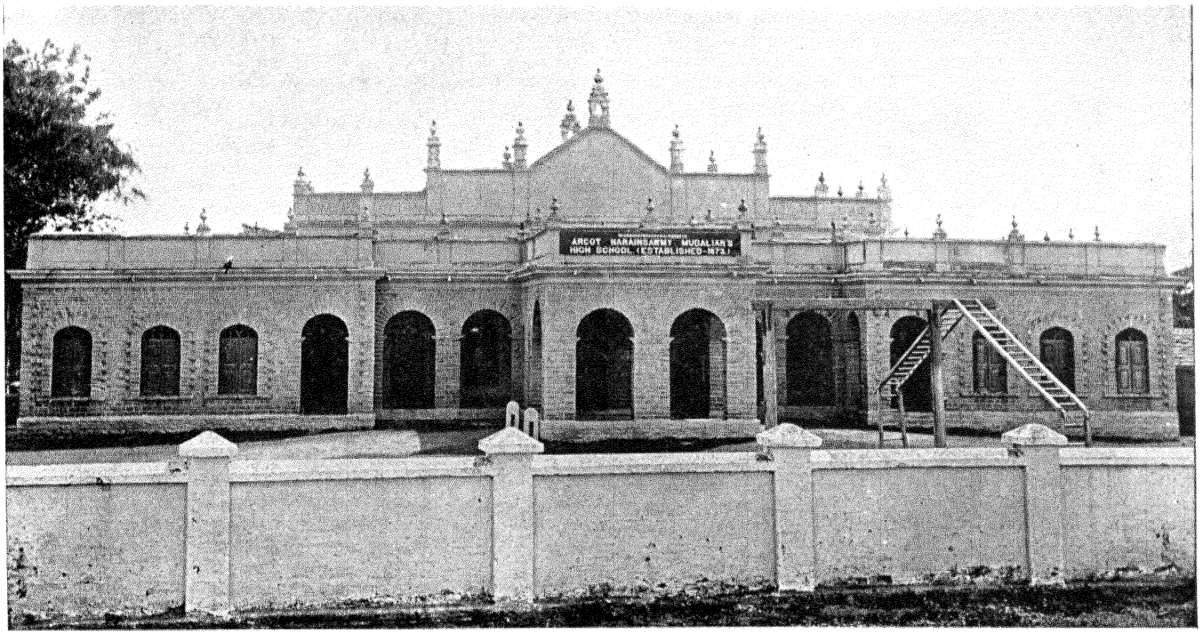
Narainsawmy Mudaliar's High School, Bangalore.

This institution is located in a building specially built for it at a cost of Rs. 60,000 by the founder Rai Bahadur Arcot Narainsawmy Mudaliar, who laid the foundation stone in the year 1888. The building was completed and the school transferred to it in the year 1894. The compound comprises an area of about 1½ acres in a central part of the station, close to the native quarters, but well separated from that crowded locality.

The main building measures about 130 ft. by 76 ft. and consists of a spacious hall 70 ft. by 30 ft. by 20 ft. used for lecture and examination purposes, two wings to east and west measuring each 72 ft. by 25 ft. by 16 ft. to accommodate four main classes of the high school department and the different vernacular munshis. There are verandahs about 10 ft. wide in front and rear with two rooms, each about 16 ft. by 16 ft. by 16 ft., one of them being utilised for the office and library, and the other for the matriculation class or IV Form. In the rear of the main building there are two blocks facing east and west, each measuring about 90 ft. by 25 ft. and consisting of four rooms, each 20 ft. by 16 ft., to accommodate six classes of the primary and lower secondary departments. A well-equipped science laboratory is also provided in one of the rooms of the eastern block. The ground having a great fall from south to north, between Dickenson and Gungadhara Chetty Roads, the basement of the main building is more than 6 ft. high in the rear and about 1½ ft. in front. The walls are all of stone of the gneiss type which is generally found in large quantities in and near Bangalore, and the floor is all paved. The roof which is of flat terracing throughout, is supported on steel girders and wooden joists in the hall, and on wooden beams and joists in other parts.

On the whole the building commands a good view, facing both north and south, and has its main entrance with a carriage portico on the south. Good ventilation and light have been provided throughout by means of a number of large doors, windows and ventilators.

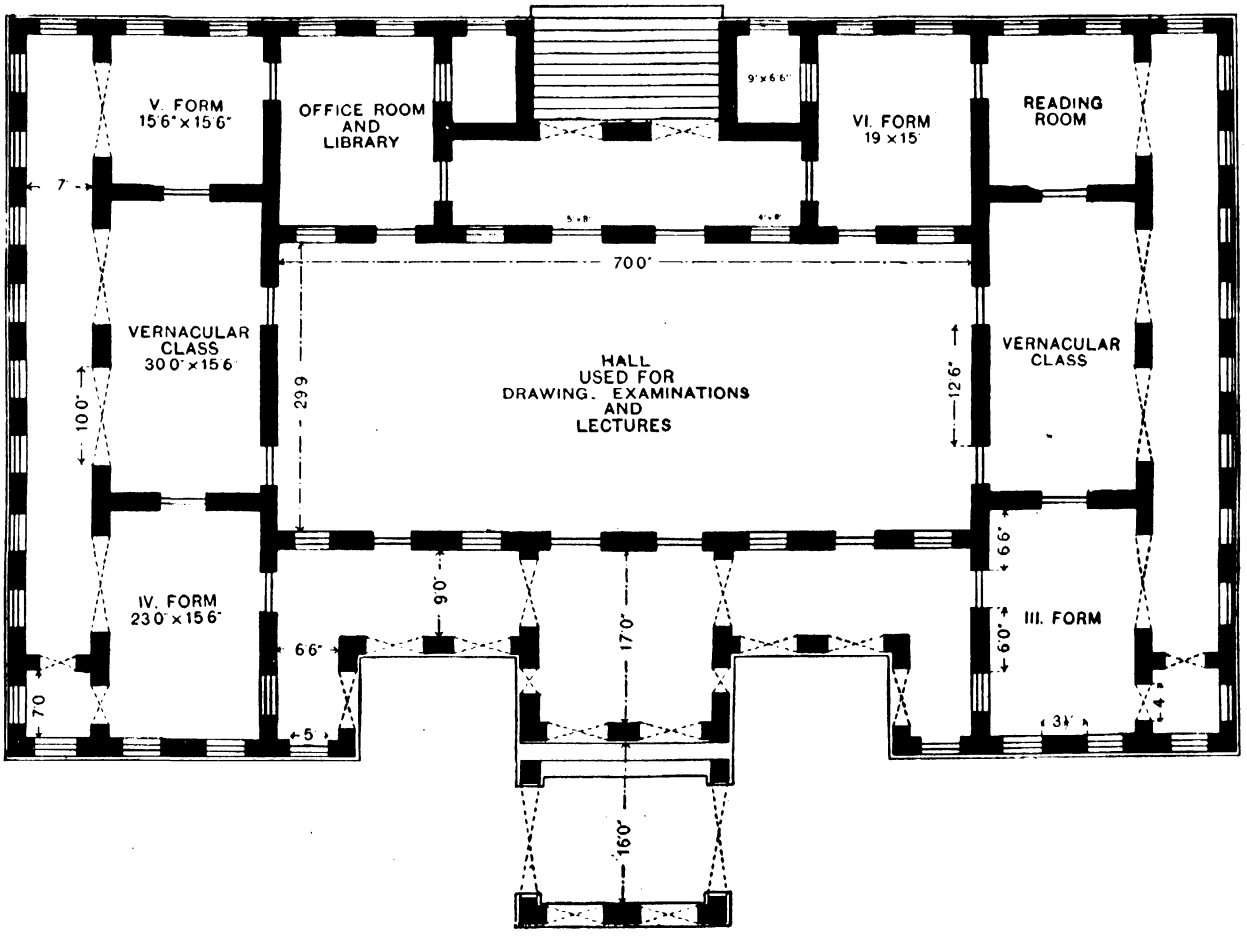
Owing to the want of sufficient space within the compound for physical exercise a large spacious open ground about 8 acres in extent to the north of Gungadhara Chetty Road has been secured on lease from the military and municipal authorities for the use of the school.

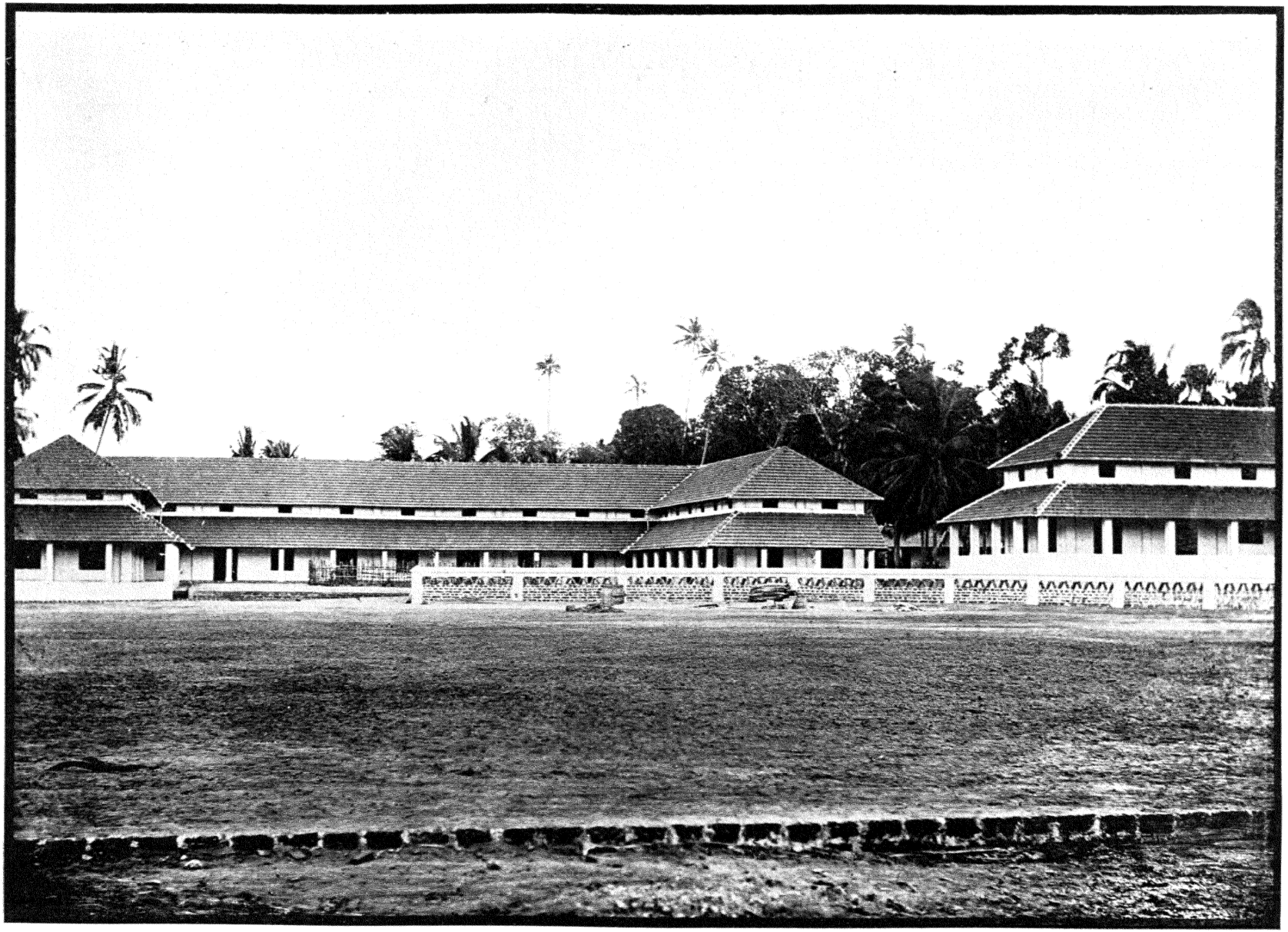


ARCOT NARAINSAWMY MUDALIAR'S HIGH SCHOOL, BANGALORE.

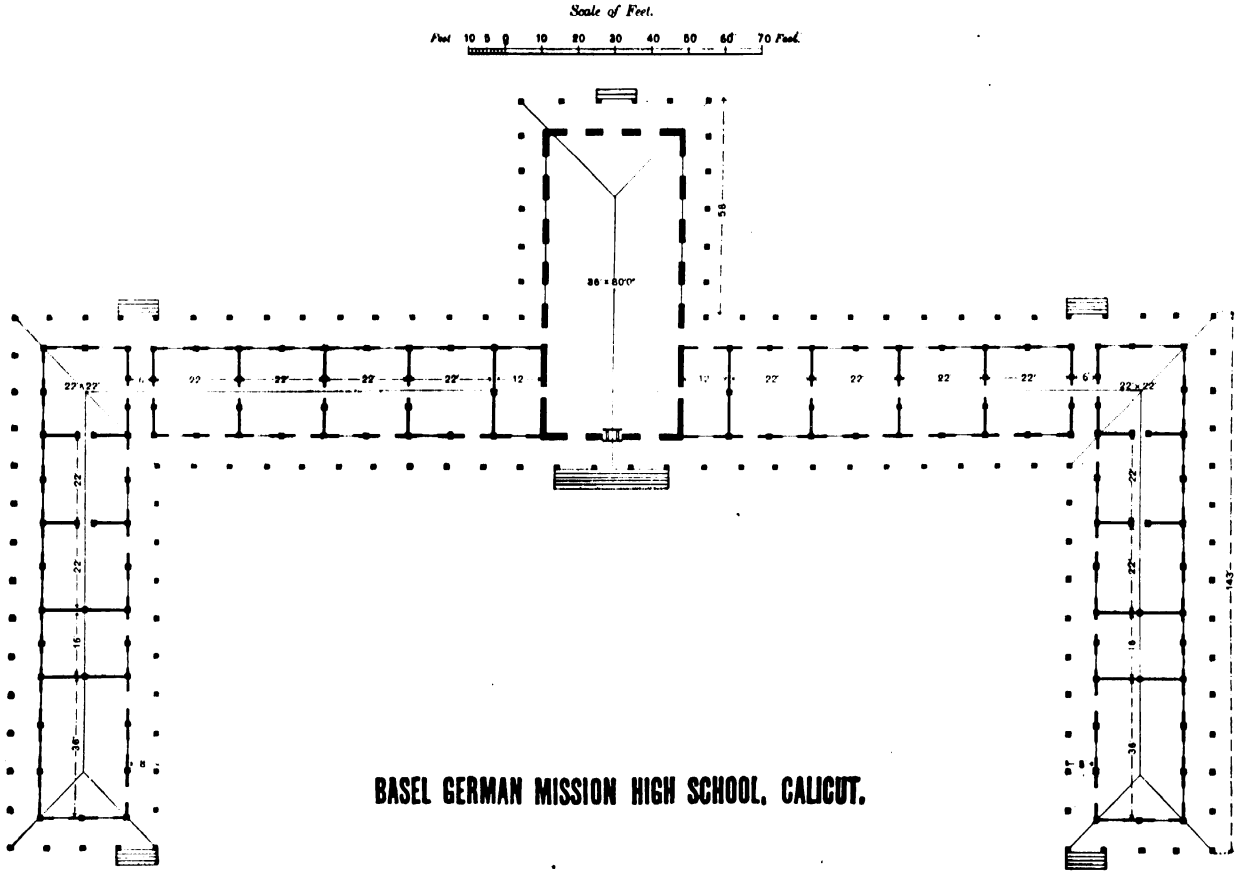
Scale of Feet.

Feet. 10 5 0 10 20 Feet.





BASEL GERMAN MISSION HIGH SCHOOL (Primary Department), CALICUT.


Scale of Feet.
Feet 10 5 0 10 20 30 40 50 60 70 Feet.
36 × 80'0"
22
22
22

The Basel German Mission High School, Calicut.

The school was established in 1848 and recognised as a high school in 1879. The present site, which was acquired in 1904 for the sum of Rs. 12,200, is in a quiet and healthy spot, having an elevation of about twelve feet above the town of Calicut, and an area of about four acres.

The climate of Calicut is very oppressive and moist from March to June, when the monsoon bursts with full force over this part of the west coast, the rainfall averaging 120 inches per annum, but often exceeding that amount. Low roofs and broad verandahs are therefore a matter of necessity to keep out both the sun and the rain.

A matter of great importance is the drainage of the compound. The volume of rainfall from the extensive roofs has to be led away in two drains at both ends of the buildings. Likewise the amount that falls over the large playground finds its outlet on the lower side through the boundary wall by not less than 20 pipes or holes. Yet sometimes part of the boundary wall gives way under the tremendous force of the floods.

All the buildings are of laterite stone cut in blocks 16 in. by 9 in. by 4½ in. The bearing capacity of the laterite is not large, and therefore high walls such as those of the central hall have to be wide in proportion (1 ft. 6 in.). This is also the reason why all the buildings are only one storeyed. But the material is easy to handle, masons' wages cheap, and the stone itself readily obtainable (1,000 blocks at Rs. 40 delivered on the premises). The roofs are all covered with tiles of the Mangalore pattern and all the floors paved with flooring tiles, plain or ornamented.

There are two big blocks, one for the primary classes (10 class rooms 20 ft. by 20 ft. by 17 ft. with a hall 60 ft. by 20 ft. by 17 ft. for prayers, oral examinations and drill in the monsoon) and the other for the secondary and, it is hoped shortly also, the college classes.

The main block contains in the centre a conspicuous hall, the largest and coolest in the whole of Malabar. The dimensions of the hall are 80 ft. by 36 ft. by 24 ft. with no flat ceiling. Here, as in all rooms, instead of timber trusses iron principals have been used to span the width, which makes the appearance lighter and the construction cheaper. The hall can easily seat 500 persons. The apex of the roof is just 51 ft. above ground. On each side of the hal are a small room 12 ft. by 22 ft. by 17 ft. (for headmaster and peons respectively), and four class rooms (22 ft. by 22 ft. by 17 ft. each). Then follows a passage as wide as the verandah, to allow the students to cross to the outhouses and playgrounds in the rear, as the school rooms open only into the front verandah. The two wings contain each (1) three more class rooms of 22 ft. length, (2) a smaller room (18 ft. long) used as library and office, and as teachers' common room respectively, (3) a hall (36 ft. long) used respectively for drawing and science. The former is furnished with 40 slanting single desks and is frequently used for class examinations also, while general examinations are held in the big hall. The science lecture hall has a sloping gallery, conveniently seating 80 students and affording them an uninterrupted view of the lecture tables.

All the rooms are very carefully ventilated and lighted. The class rooms have three large windows each besides the door, and four ventilators overhead which carry off the heated air. This system has been found to work very well. It also increases the light in the room. The class rooms are all connected by inner doors, which, however, remain usually closed. The verandah (9 ft. wide) runs round the whole high school block, making a circuit of rather more than 1,000 running feet. The primary school building has no verandah on the rear nor sides, but protecting roofs running in a line above the windows.

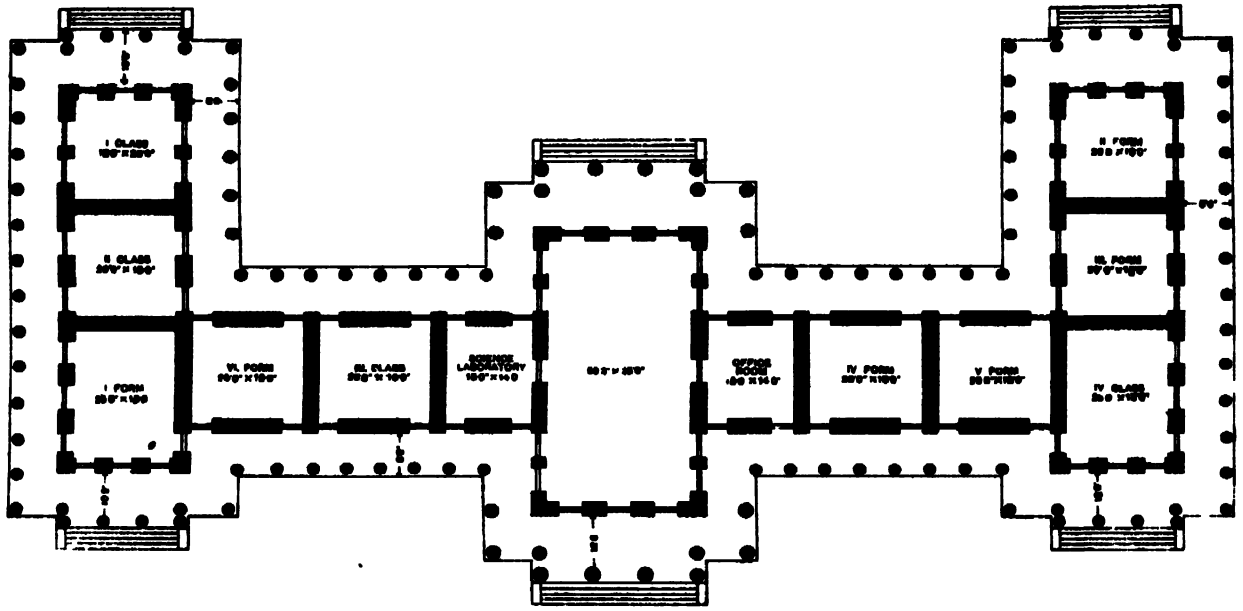
The playground extends over an area of more than 1 acre and is used for cricket and football. Courts for lawn tennis and badminton have been laid out behind the high school. The gymnastic shed is a good one, being very airy, and contains all the apparatus prescribed by the Education Department.

Behind the right wing of the school is a line of 11 tiffin rooms (two for teachers, nine for students) with a new well supplying good drinking water in front of them.

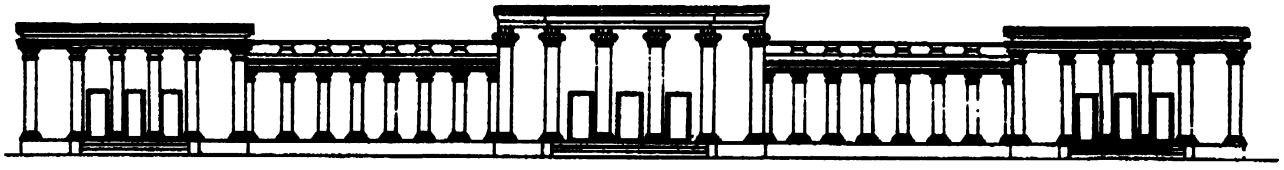
The latrine behind the left wing has a chimney 31 ft. high to carry off the gases. This device has been planned, because the latrine had to come pretty near the school building. It seems to work satisfactorily.

The manager's residence (erected in similar style) with outhouses and gardens completes the list of buildings in the compound, which were erected in 1904 and 1905 at a total cost of ₹48,000 (exclusive of cost of site). No Government grant for building was accepted from a distrust of the conditions which might be imposed. The work as originally designed has splendidly stood the test of severe monsoons. The buildings were designed and all building operations carried out by Mr. G. Benner, architect on the staff of the mission. The primary school building was occupied in 1905 and the high school block formally opened on 8th January 1906 by Mr. A. R. Knapp, I.C.S., Collector of Malabar. The whole high school block with outhouses took less than 10 months to complete (monsoon season included). Additional land has been acquired to the west of the school, upon which two hostels, accommodating 100 students, will be erected.

DEVASTANAM HINDU HIGH SCHOOL, TIRUPATI, MADRAS.



FRONT ELEVATION



Devastanam Hindu High School, Tirupati.

This institution is located in a building erected specially for the purpose at a cost of about ₹50,000.

The construction was begun in 1894 and the school was transferred to it on the 7th February 1900 when the building was opened by His Excellency the Governor.

The compound is 360 ft. by 250 ft. and is situated at the western end of the town near the law courts and the Town Hall, and is free from the noise and bustle of the town.

The building is of brick and mortar construction faced with fine white plastering. The roof is of flat terracing throughout except over the main hall which carries an upper storey containing a corresponding hall.

The main hall (*vide* plan) measures 50½ by 25 ft. and is used for examining purposes for drawing classes and also for meetings.

The right wing consists of (1) one room 18 by 14 ft. used as office room and library, (2) four rooms 18 by 20 ft. each provided with five reversible desks capable of accommodating 30 scholars, (3) one room 25 by 18 ft. provided with seven reversible desks capable of accommodating 40 pupils.

The left wing consists of two rooms, one 18 by 14 ft., and another 20 by 18 ft., both used as laboratories. In one room the physical apparatus and chemicals are stored and the other is fitted up for practical work in science. It is also provided with galleries capable of seating 30 to 36 pupils. The two rooms are connected by a doorway. In the left wing there are three more rooms of exactly the same dimensions as the corresponding rooms in the right wing.

A garden to the west of the building has recently been purchased and the purchase or lease of a large plot of land on the outskirts of the town suitable for a playground is under contemplation.

Elphinstone High School, Bombay.

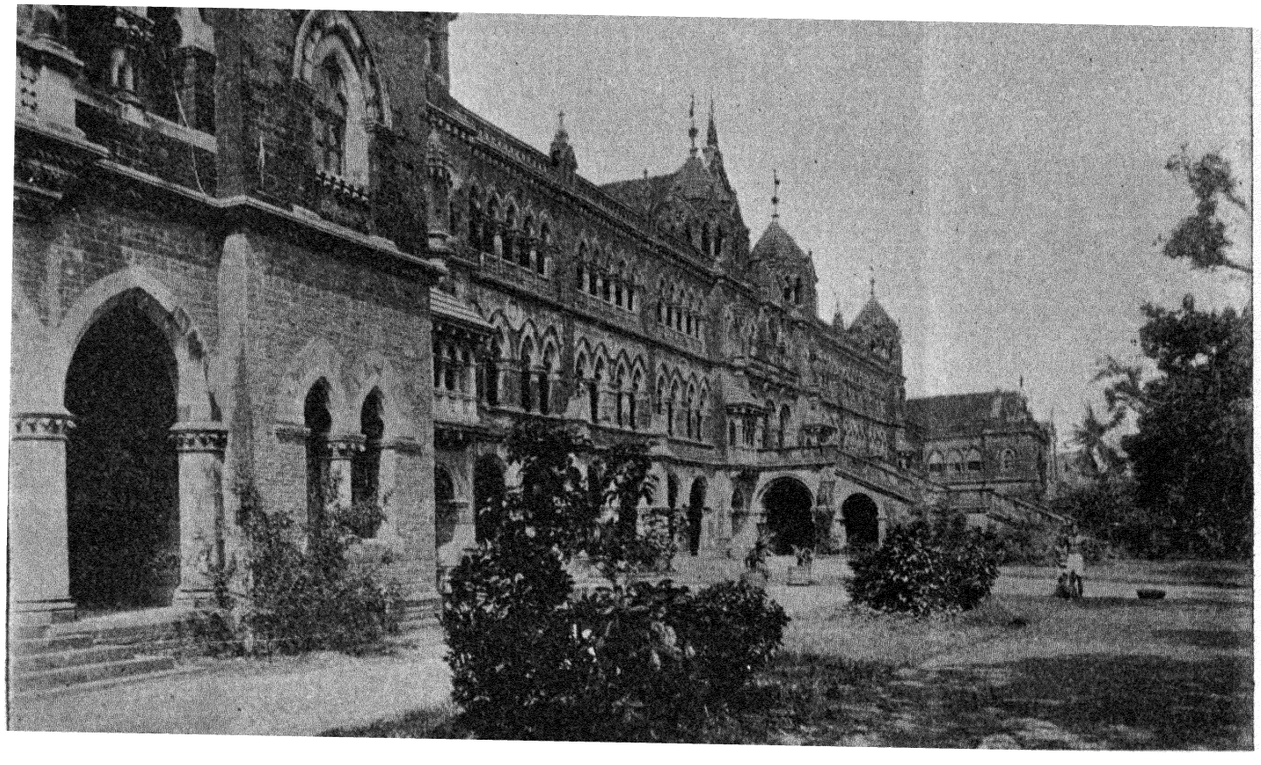
The David Sassoon building of the Elphinstone High School was erected from designs by Mr. G. T. Molecey at a cost of R5,67,576, R1,50,000 of which was contributed by Sir Albert Sassoon, K.C.S.I. The first stone was laid in 1872 and the work was completed in December 1878. It is a large and spacious building of some architectural pretensions, built of stone. It faces the west and is situated at the junction of the Cruickshank Road and the Carnac Road. Its total area is 10,123 sq. yds. There are 25 class rooms, two of which are lent to the secondary teachers' training college, eight small tiffin rooms for masters and boys, two small rooms for cricket kit and drill and gymnastic apparatus, five water rooms, one lecture room for the principal, one office room, one master's room, one laboratory, a hall (to accommodate about 400 persons), a library and residential quarters for the principal (consisting of three large rooms, two small rooms and offices) which once formed a portion of the school premises. The building has three floors connected by teak staircases at the two sides and spiral stone steps on either side of the hall. Corridors run along the eastern and western sides of the building. In the front there is a well laid out garden and a handsome flight of stone steps leading to the hall and in the rear a playground 11,380 sq. yds. in area. In this playground are situated urinals, latrines, stables and all servants' quarters. There is also room for a cricket or hockey ground. In addition there is a playground covered with sand and a gymnasium underneath a portion of the first floor. Every class room is well lighted and ventilated and allows over 20 sq. ft. of accommodation to each pupil, but as the school is situated on a busy thoroughfare near a train junction the rooms are somewhat noisy.

2. This building was originally meant to accommodate 1,000 boys, but as a portion on the southern side has been converted into residential quarters for the principal and another portion lent to the training college, it cannot conveniently accommodate more than 700.

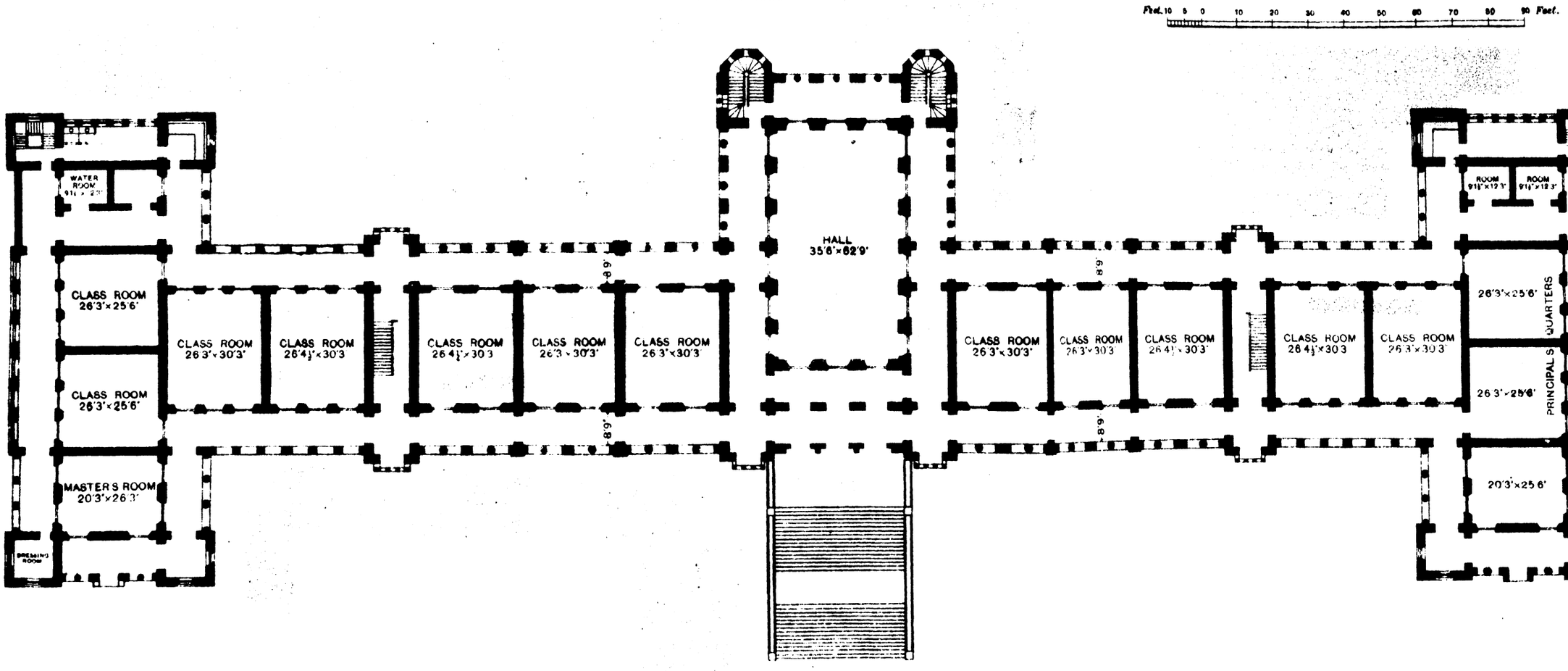
3. Most of the class rooms are furnished with about nine benches to seat some 30 boys, a master's table and chair on a wooden dais and a blackboard. The benches, however, are of an old pattern and are gradually being replaced by dual desks constructed on hygienic principles.

The laboratory is an ordinary room in which have been placed a semi-circular platform with tiers of seats to accommodate about 100 boys, a large table with a covering of lead for experiments and a few cupboards containing chemical apparatus.

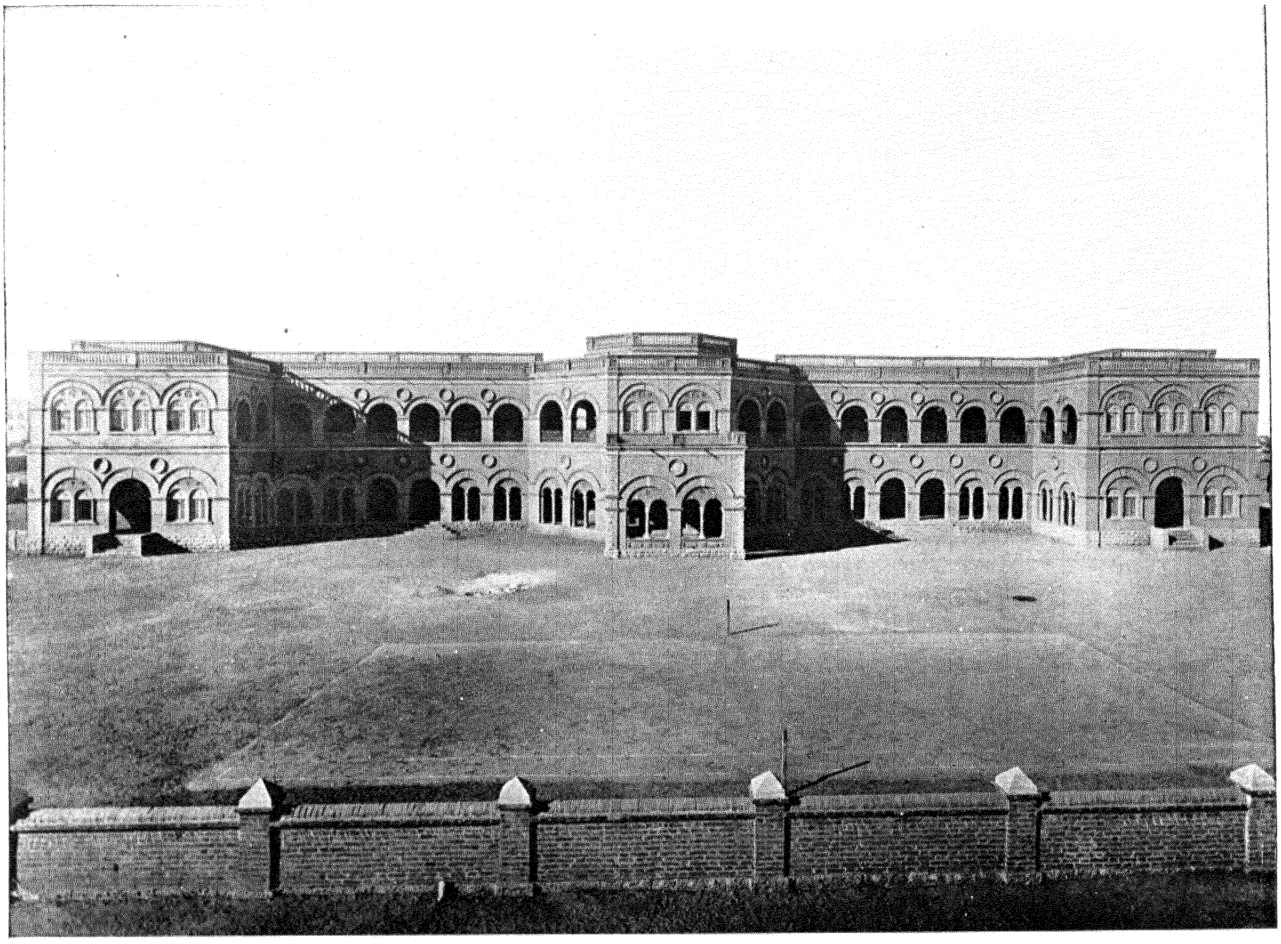
The library contains about 5,000 volumes on various subjects. These are all properly classified and numbered and suitably stored in wooden cupboards with glass doors. Every year fresh additions are made of works worth about Rs. 150.

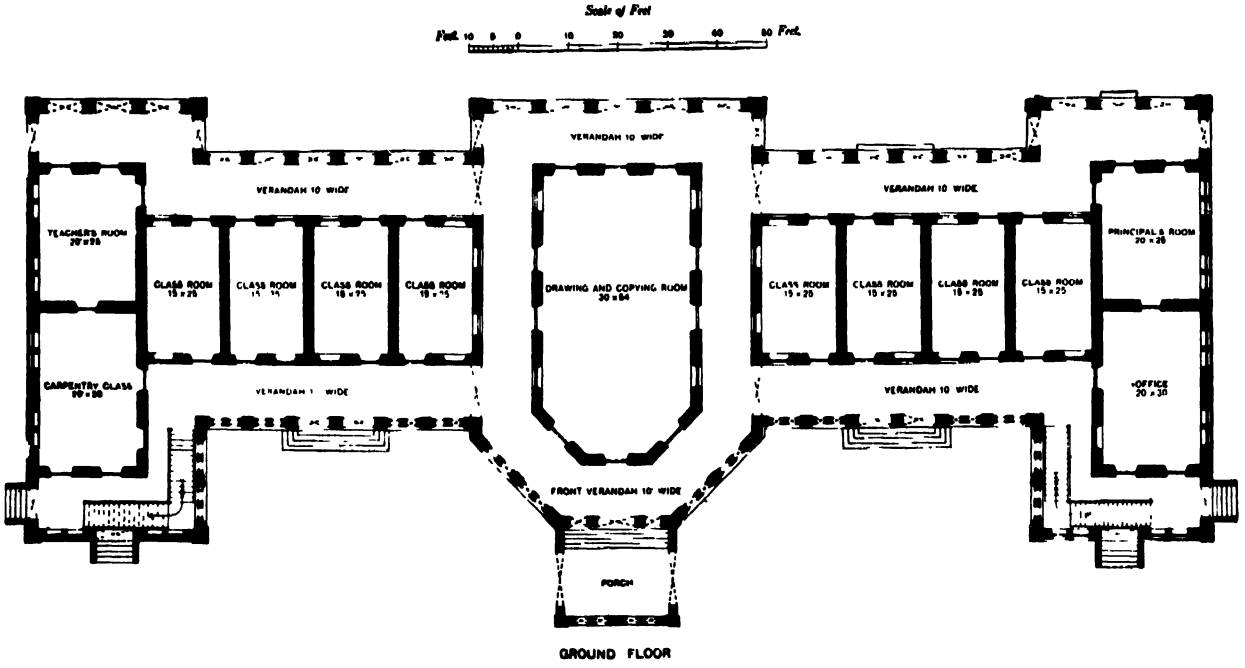


ELPHINSTONE HIGH SCHOOL, BOMBAY.



FIRST FLOOR PLAN.





GROUND FLOOR

HIRANAND ACADEMY, HYDERABAD, SIND.

Navalrai Hiranand Academy, Hyderabad, Sind.

The foundation stone of the Navalrai Hiranand Academy was laid by His Excellency Lord Sandhurst in the year 1895, the north wing of the building was completed in 1900, when His Excellency Lord Northcote opened it. The entire building was completed in 1903; and in 1904 His Excellency Lord Lamington opened the lecture hall called the "Jacob Hall" in memory of Mr. H. P. Jacob, a former educational inspector in Sind.

The academy is a two storeyed building 238½ ft. long by 85½ ft. wide. The central portion with a semi-octagonal face in front, 55 ft. long by 30 ft. wide, consists of two floors.

On each side of the central hall there are four class rooms measuring 25 by 15 ft. and at the end two more rooms each measuring 30 by 20 ft. and 25 by 25 ft. respectively on each floor. There is a verandah 10 feet wide running along the whole length of the building both in front and rear on both floors.

The construction of the building is plain in uniformity with other public buildings in the city. Both in front and rear semi-circular arches on massive piers form the corridors with here and there small pillars as mullions carrying subsidiary arches.

The average height of the plinth, which is of hammer-dressed coursed stone masonry, is 4 feet and the total height of the building including the parapet is 43 ft.

The lighting is mostly through glazed doors and windows. The ventilation, being through, is ample and the rooms keep cool in the hottest weather.

There are eight rooms on the ground floor and 10 on the upper floor used as class rooms. Of these 16 measure 25 by 15 ft., one 30 by 20 ft. and one 25 by 20 ft. On the ground floor a large room 30 by 20 ft. is used as the school office and another of a similar size is used as the carpentry class room. Two others, measuring 25 by 20 ft. each, are used respectively as the principal's and masters' retiring rooms. On the upper floor, two rooms in the northern wing, measuring respectively 30 by 20 ft. and 25 by 20 ft., are used for the school library and laboratory. More room is needed for classes and for the technical workshop and the accommodation is insufficient for present wants. The arches of the portico are inlaid with glazed Hala tiles. Below the cornices on each floor the walls are inlaid on the outside with a single line of glazed Hala tiles. The parapet over the northern and southern wings consists on one side of glazed earthenware balusters of the special Hala tile, turquoise tint. The compound is enclosed with a brick wall on a stone plinth with four wrought iron barred doors with dressed stone pillars. The design was originally drawn by Mr. R. Jones, C.I.E., but modified by Mr. P. K. Chitale, L.C.E., Executive Engineer, and Mr. P. P. Chandanani, L. C. E., to suit local requirements. The cost of the building including outhouses and compound wall was Rs. 78,000. During the last ten years the expenditure on furniture, apparatus and library books, etc., has been about Rs. 10,000.

The Ranchhodlal Chhotalal High School, Ahmedabad.

The foundation stone of this school was laid by His Excellency Lord Lamington on 12th March 1904, and the building was completed and opened for use in December 1906. The total cost of the school was Rs. 1,26,051 including land compensation, out of which Rs. 41,000 was contributed by Mr. Chinubhai Madhavlal, C.I.E., in memory of his grandfather, the late R. B. Ranchhodlal Chhotalal, C.I.E.

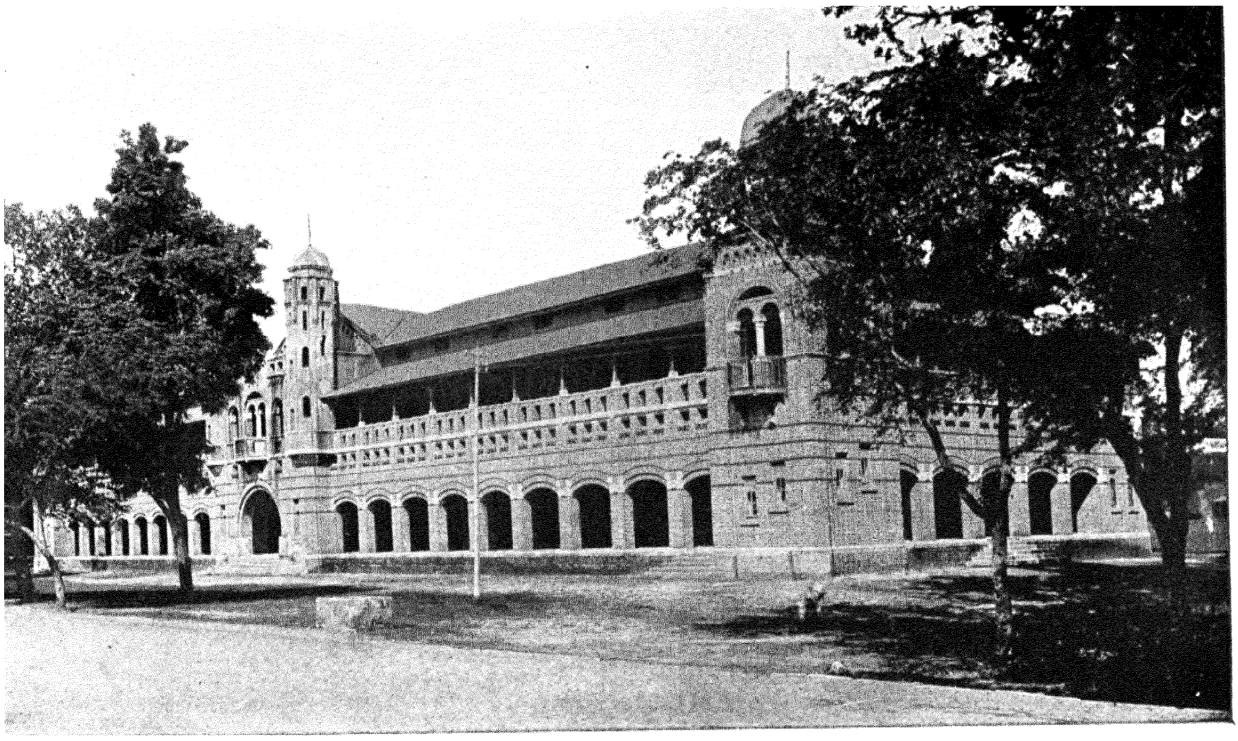
The site selected for the school is within the city walls, to the north of the English church on the road leading to the Delhi gate. The building faces the west and runs parallel to the main road in a compound of nearly 4 acres, of which 1,109 sq. yds. are occupied by the main building, and 440 sq. yds. by the subsidiary buildings.

The main building is E shaped and consists of two floors 17 ft. each in height and accommodating 350 students. The ground floor of the building has an arcaded verandah running round it and has a large central hall 60 ft. by 30 ft. with a vestibule of 30 ft. by 9 ft. in front, and the back is turned into a semi-octagon with high venetianed windows The right and left wings have each four rooms 22 ft. by 22 ft. each, and a staircase room 22 ft. by 11 ft. in each. The west of the class rooms is protected by an arcaded corridor 10 ft. in width, and the back or the east side has one of 8 ft. with end corridors of 10 ft. each. The front corridor corners have projecting towers with staircases, and those in the rear have been utilized by turning them into store rooms. The towers are 54 ft. high and are finished with domes of 6 ft. internal diameter. At the first floor level there are hanging galleries 4 ft. 6 in. wide, looking down into the great hall. The hall is lighted on the first floor with the lead-light windows in the octagon. From the vestibule, there rise two small octagonal turrets, to accentuate the central feature of the design, of which the one on the left leads to an open terrace by means of a wooden staircase. These turrets are finished with domes 4 ft. 6 in. in diameter.

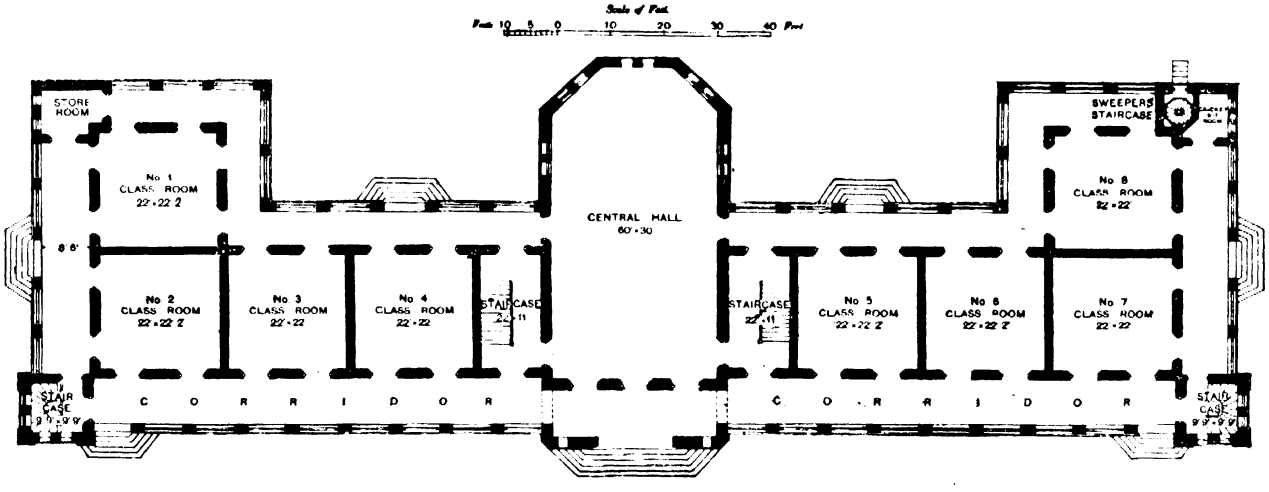
On the first floor, the right wing has a large library 45 ft 10½ in. by 22 ft. 9 in. and rooms for the principal and masters, with a lavatory adjoining. The left wing contains one class room, a chemical laboratory, and a chemical lecture room with raised seats to hold 136 students.

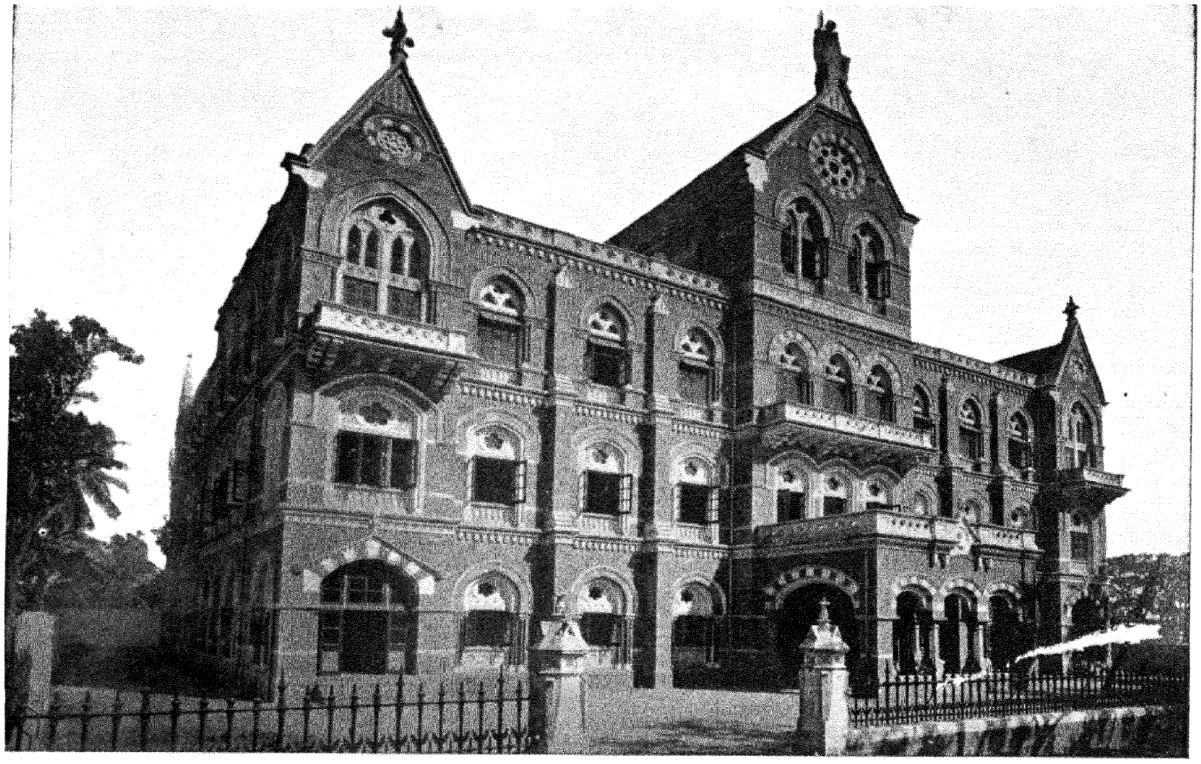
The subsidiary buildings attached to the school are a gymnasium (62 ft. 3 in. by 27 ft. 3 in.), water and tiffin room (44 ft. 10½ in. by 18 ft. 10½ in.), peons' quarters, and latrines and urinals.

The building was designed by Mr. J. Begg, F.R.I.B.A., Consulting Architect to the Government of Bombay. The cost of the main building itself was Rs. 89,146, *i.e.*, something under Rs. 6-12-0 per sq. ft. or annas six per cubic foot. The cost of the subsidiary buildings referred to above was Rs. 10,758.



RANCHHOD LAL CHHOTA LAL HIGH SCHOOL, AHMEDABAD.

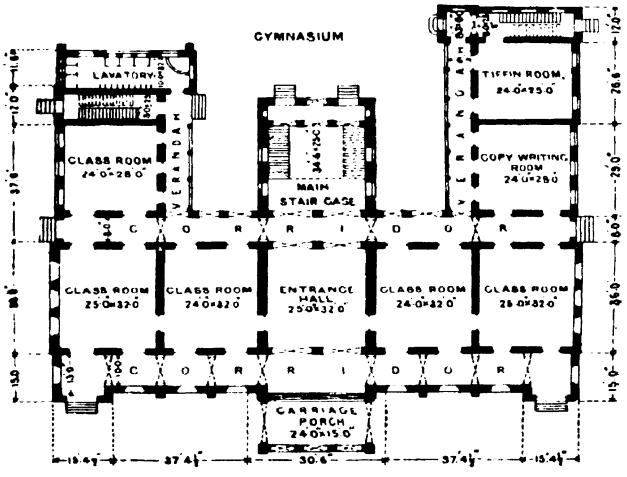




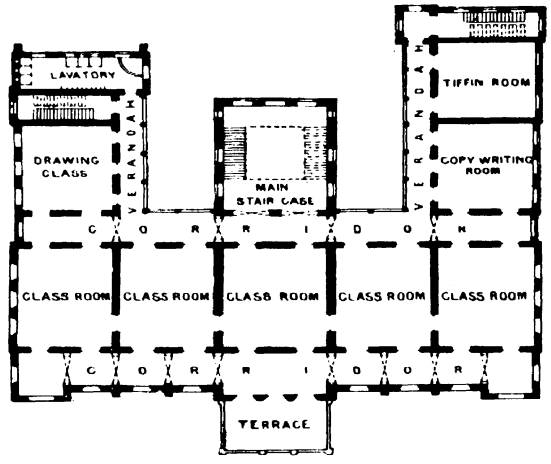
BYRAMJEE JEEJEEBHOY PARSEE CHARITABLE INSTITUTION, BOMBAY.

Scale of Feet.

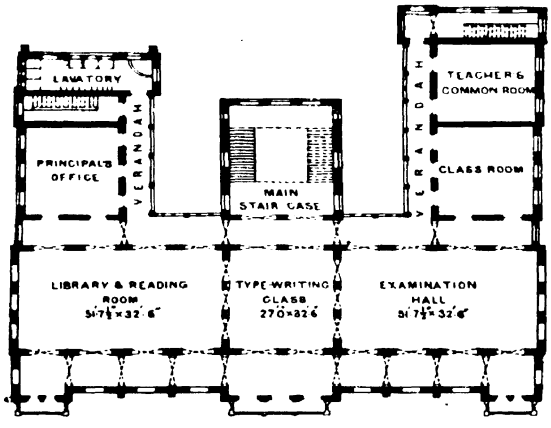
0 10 20 30 40 50 60 70 80 90 100



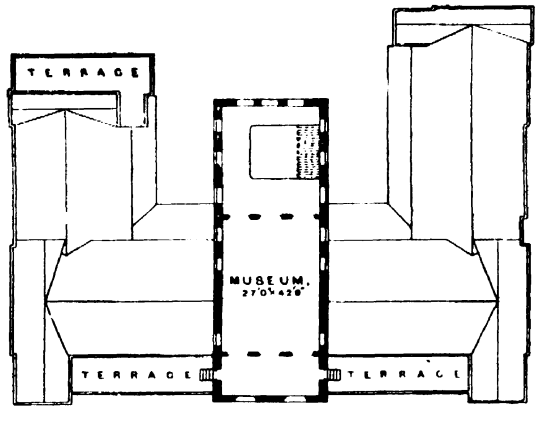
GROUND FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN



THIRD FLOOR PLAN

Byramjee Jeejeebhoy Parsee Charitable Institution, Bombay.

This building is situated opposite the Charni Road Railway Station of the Bombay, Baroda and Central India Railway on Queen's Road, the main thoroughfare in the western part of the Island of Bombay. The situation is one of the finest in the city as the building faces the Back Bay and is open to the westerly sea breeze.

The building consists of three wings forming the three sides of a rectangle, with a projection in the open space between the two side wings. The front or principal wing faces the Queen's Road on the west side, and is 136 ft. long and 118 ft. wide. The side wing on the south measures 128 ft. long and 37 ft. 6 in. wide. The other wing on the north measures 113 ft. and 36 ft. wide. The projection in the open space above referred to measures 36 ft. and 18 ft. broad. The projection accommodates the principal staircase leading to the different floors. The building consists of a ground floor and two upper floors but the central portion of the front wing with the staircase projection has been raised one floor higher. The front wing consists of an entrance hall in the centre 25 ft. by 32 ft. with a carriage porch fronting it. On either side of this central " " there are two class rooms, one measuring 24 ft. by 32 ft. and the other 25 ft. by 32 ft. There is a corridor extending throughout the whole length of the front wing 10 ft. wide, with a similar corridor behind 8 ft. wide, to protect the central hall and class rooms from sun and rain. The southern wing consists of a class room 28 ft. by 24 ft., a tiffin room for boys 24 ft. by 25 ft. and a rear staircase with a verandah on the north side extending along the whole of the wing. The other or the north wing consists of a class room 20 ft. by 24 ft., a rear staircase and a retiring room for the boys.

The accommodation on the first floor is similar to that on the ground floor with the exception that the room above the entrance hall is used as a class room. The second floor consists of a long hall extending along the whole of the front wing measuring 135 ft. long and 33 ft. 6 in. wide, divided by open arches. The south wing on this floor consists of a class room, a teachers' common room, and the rear staircase. In the north wing there is only one room, which is used as the principal's office, besides the rear staircase and the retiring rooms above those on the lower floors. The additional floor in the central portion of the front wing is used as a museum of commercial products.

The style of the building is modern Gothic, with a gable roof over the second floor in the centre and also gable roofs over the end wings. The figure in the central finial is a marble statue of the Goddess of Learning with a lighted torch in one hand and a book in the other.

The foundation and plinth are of rubble and lime masonry. The walls are generally of brick and lime masonry, the external faces being of Coorla stone, medium dressed khankis. The doors and windows are all made of teakwood framing filled in with panelled venetian or glazed shutters as required. The strings, cornices, caps and other dressing are of white Porebunder stone. The bases and arches are of Coorla and Porebunder stone. The columns are of red Dharangdra stone, yellow Coorla stone or Porebunder stone in different parts of the building. The ground floor is in some parts made of artificial stone laid in concrete bedding 9 in. thick, and in others of acoustic tiles. The upper floors are made of teakwood girders, joists and planking. The first floor is made of concrete laid on the planking finished with a layer of artificial stone. The second floor and the floor of the museum are similarly constructed with the exception that the main or public hall, all the staircase halls and the corridors in front and rear on the second floor are paved with Minton tiles of elegant patterns. The main staircase leading from the ground to the first floor is made of Coorla stone fine dressed. The main staircase leading to the two other floors is made of teakwood, the underside being filled with concrete to make them fireproof. The rear staircases are of similar construction.

The roofs are made of teakwood trusses, purlins and plankings covered with Mangalore tiles. The water closets and the urinals in the retiring rooms are on the wet system of conservancy and of the latest sanitary designs.

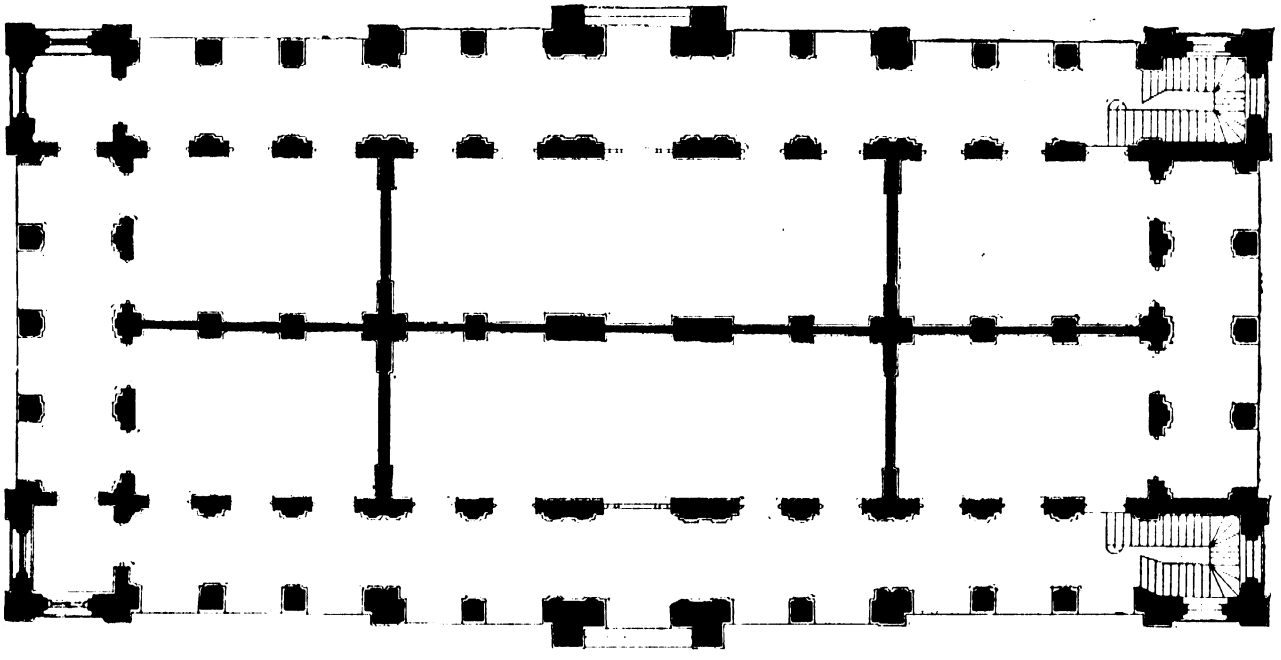
There are playgrounds in front and behind the building which have been enclosed by means of masonry walls, the front portion of the compound wall being surmounted by an ornamental iron railing. A gymnasium has been fitted up at the back of the building.

A separate provision has been made for the supply of filtered water on each floor for drinking purposes, in addition to the water taps provided for washing purposes.

There is an upper storeyed outbuilding consisting of four rooms, each 12 ft. by 10 ft., for the use of the chowkidar and other servants.

The building was designed by one of the trustees, Khan Bahadur M. C. Marzban, F.R.I.B.A., M.I.C.E., C.I.E., assisted by Mr. Hormusji C. Pastakia, M.S.E., and it was erected under the superintendence of Mr. M. N. Chandabhoy, M.S.A., etc., the contractors being Messrs. Jivanji Jamasji & Co. of this city.

The institution is divided into four departments, *viz.*, (1) the primary department teaching up to the Gujarati fourth standard, (2) the middle school department comprising Anglo-Gujarati standards I to III, (3) the commercial high school department comprising Anglo-Vernacular standards IV to VII and preparing pupils for the school final examination with commerce as the optional subject, (4) the commercial college department preparing students for the London Chamber of Commerce examinations.



GROUND FLOOR PLAN.

THE HARE SCHOOL, CALCUTTA.

The Hare School, College Square, Calcutta.

The school is called after David Hare, the friend of Raja Ram Mohan Ray, and one of the great pioneers of Indian education. His statue, erected by public subscription, stands in the compound between the school and the Presidency College; and his portrait by Mr. Charles Pote is to be seen in the school library.

Its history illustrates the development of the educational movement in Bengal. The School Book Society founded a pathsala at Arpooly in 1818 and a preparatory school at Pataldanga in 1822. These were made over to Mr. Hare's care and were soon closely connected, inasmuch as boys from the Arpooly School were promoted to the Pataldanga school, which prepared them for the Hindu college. In 1834 the two were amalgamated under the name of the School Society's School, though generally known as Hare's school. On Hare's death in 1842 the school passed from private management into the control of the Government Education Department of the day. Suddenly ejected from its building by the landlord in 1843 it found a temporary home in the pathsala of the Hindu College, put at its disposal, until in 1846 a block was built to accommodate 500 boys. This, now used as a laboratory by the Presidency College, was known as the Colootola Branch School. In 1852 the exclusive Hindu character of the school was abolished, and it has since been open to all castes and creeds. In 1867 it was officially named the Hare School, at the instance of Sir William Grey; and it was moved to its present building at the junction of College and Peary Charan Sirkar's Street in 1872. The cost, about a lakh of rupees, was met mainly from the accumulations of surplus fees.

The building is a two storeyed block running east and west with its left flank on College Street. The two floors are of similar arrangement. Each is surrounded by a wide stone verandah, communication being by a wide stone staircase in the north-east corner. Each is divided lengthwise by a central wall, and each half floor is subdivided into three rooms, a large centre, and two smaller side-rooms. Thus the total accommodation is 12 rooms, four central rooms of about 20 by 60 ft., and eight side rooms of about 20 by 25 ft. In addition one or two temporary rooms for very small classes have been made by canvas screens in corners of the verandahs. The partition walls, whether of the permanent or of the temporary rooms, do not in all cases reach the ceiling.

One room on the upper floor is used as college office, head master's room and library. With this exception all are ordinary class rooms, with the usual equipment except that one room is set aside for special work in geography. Prize givings and other general meetings are usually held in one of the large rooms on the ground floor. The rooms are well ventilated and well lighted.

The school is cramped in its surroundings. Its left flank rests immediately on College Street, its right on a busti now in course of removal, and its south front opens directly upon a narrow street, from which it is separated by a low railing only. The small compound to the north of the school, between it and the Presidency College, is used as a school playground: school sports have been held in the last two years on the Marcus Square ground, about 10 minutes walk from the school. The pupils number about 400.

Northbrook School, Darbhanga.

The school was established in 1886 and was endowed out of the fund which was raised to commemorate the visit of Lord Northbrook to this district in 1878, and was hence associated with the name of His Excellency.

It was at first held in wretched rented houses but in 1889 it was transferred to the present building, which was erected at a cost of Rs. 18,830 by the late Rai Ganga Prasad Singh Bahadur, one of the leading zemindars of this town, and the land on which it stands was the free gift of Babu Anwar Ali Khan, another Rais of this town.

The site, although a mile off from the railway station and the court, was especially selected to afford equal facilities and advantages to the boys coming from the northern and southern quarters of this town.

The main building measuring about 113 ft. 9 in. by 58 ft. is rectangular and faces east. There are two approaches to it, one from its northern and the other from its southern gate, meeting under a projecting arched portico.

The building consists of a big central hall measuring 60 ft. by 25 by 25 ft., with a small verandah measuring 25 ft. by 15 ft. 9 in. in front and a room in the rear measuring 25 ft. by 16 ft. by 14 ft., utilised for the office and library, and with two rows of five rooms on either side of the hall. These rooms are of dimensions varying from 16 ft. by 16 ft. by 13 ft. to 20 ft. by 16 ft. by 13 ft. Of these, six open into the central hall and accommodate the first six classes of the school. The remaining four, which form the four corner rooms of the building, accommodate the two primary classes, one of them being used as a pandit's class for teaching Sanskrit.

The central hall is generally used for lecture and examination purposes, but at present it is utilised for special classes for drawing and optional subjects.

In each of the class rooms, the boys are seated in front of the teacher, in parallel rows, 3 or 4 deep as is found necessary. In each row two big benches large enough to hold 4 or 5 boys on each, are placed with desk in front and thus accommodation for about 40 boys is provided in each room.

With the exception of the corner rooms, the central hall and the office room, the other rooms cannot be said to be as well lighted and ventilated as could be desired. The defect lies in their facing north and south instead of east and west, from which quarters the wind generally blows in this part of the country.

There is an outhouse consisting of three rooms, varying in dimensions from 12 ft. by 8 ft. to 15 ft. by 12 ft. built at a cost of Rs. 559. The rooms are used for water room, refreshment room, and store room for athletic gear.

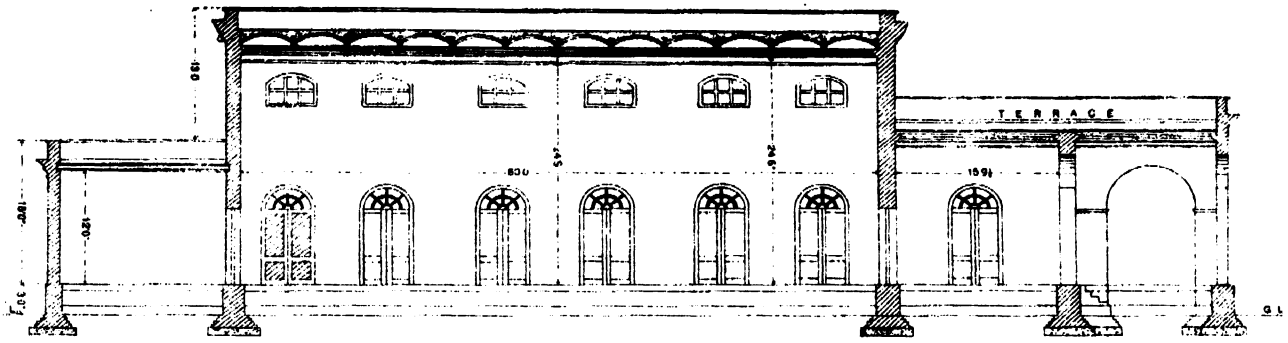
The compound, which is low and subject to inundations during heavy floods, is fenced all round with wire. It at first comprised an area of 3 acres, but lately an area of 4 acres 17 poles was added to it on its western sides, to provide a good and spacious playground for the boys and to afford sites for the construction of hostels for Hindu and Muhammadan boys.

NORTHBROOK SCHOOL, BARRHANGA.

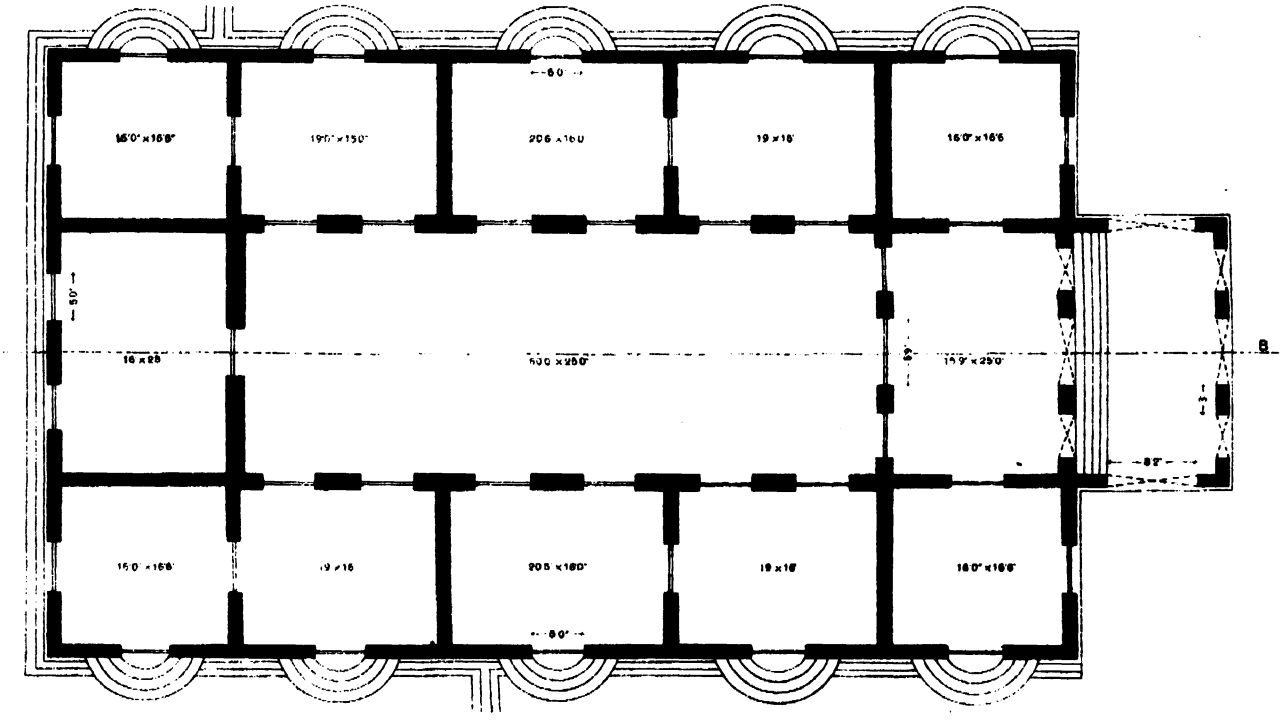
Scale of Feet.

Feet. 10 5 0 10 20 Feet.

SECTION ON LINE A B.



PLAN.



EDWARD CORONATION HIGH SCHOOL, KHURJA, UNITED PROVINCES.

The Edward Coronation High School, Khurja.

The Edward Coronation High School, Khurja, was established by Seth Nathi Mal Rai Bahadur and his younger brother Seth Ram Sahaj Mal on 22nd March 1901 in commemoration of the Coronation ceremony of His Most Gracious Majesty King Edward VII, Emperor of India.

Its foundation stone was laid by His Honour Sir James John Digges LaTouche, Lieutenant-Governor of the United Provinces, on the 14th of December 1904, and the building with its fine marble portico was completed only quite recently. It is situated in a garden on the outskirts of the town and a branch canal runs along the southern boundary.

The compound occupies about 5 acres, of which 17,630 sq. ft. are taken up by the school, 16,536 sq. ft. by the Govind boarding house forming the northern wing of the school, 16,536 sq. ft. again by the other boarding house now under construction forming the southern wing, and the remainder is used as a playground.

The school is a one storeyed building facing the west, two rooms deep, having a façade 215 ft. long. The depth of the building is 82 ft. and the height 17 ft., that of the central hall being 22 ft.

The plinth is 3 ft. high and the staircases at the back are domed. The central and cross passages are such as make the work of supervision easy and allow the visitors to walk round without disturbing the class work.

A verandah, 7 ft. wide, runs round the building. The building is well lighted and well ventilated. There are altogether 20 rooms and one hall, 16 rooms measure 20 ft. by 17 ft. each; the two corner rooms in the front are 14 ft. by 14 ft. and the remaining two at the back 18 ft. by 14 ft. each. The hall is 70 ft. long and 20 ft. wide.

The laboratory occupies the south-east corner room and an adjoining room and is well equipped. The library contains about 1,500 volumes. The compound is mostly laid out as a garden, but there are two tennis courts and a cricket field behind the building.

The cost of the school building was over a lakh of rupees while that of the Govind boarding house was about Rs. 40,000.

Colvin Taluqdar's School, Lucknow, "Siddon's" Quadrangle.

The Colvin Taluqdar's School was erected in 1892 by the taluqdars of Oudh at the instance of the late Sir Auckland Colvin to provide a special school for the sons of taluqdars only. The school comprises a school house and two boarding houses in the form of quadrangles, as well as quarters for the principal and four of the staff. The plan of one of these quadrangles is here reproduced.

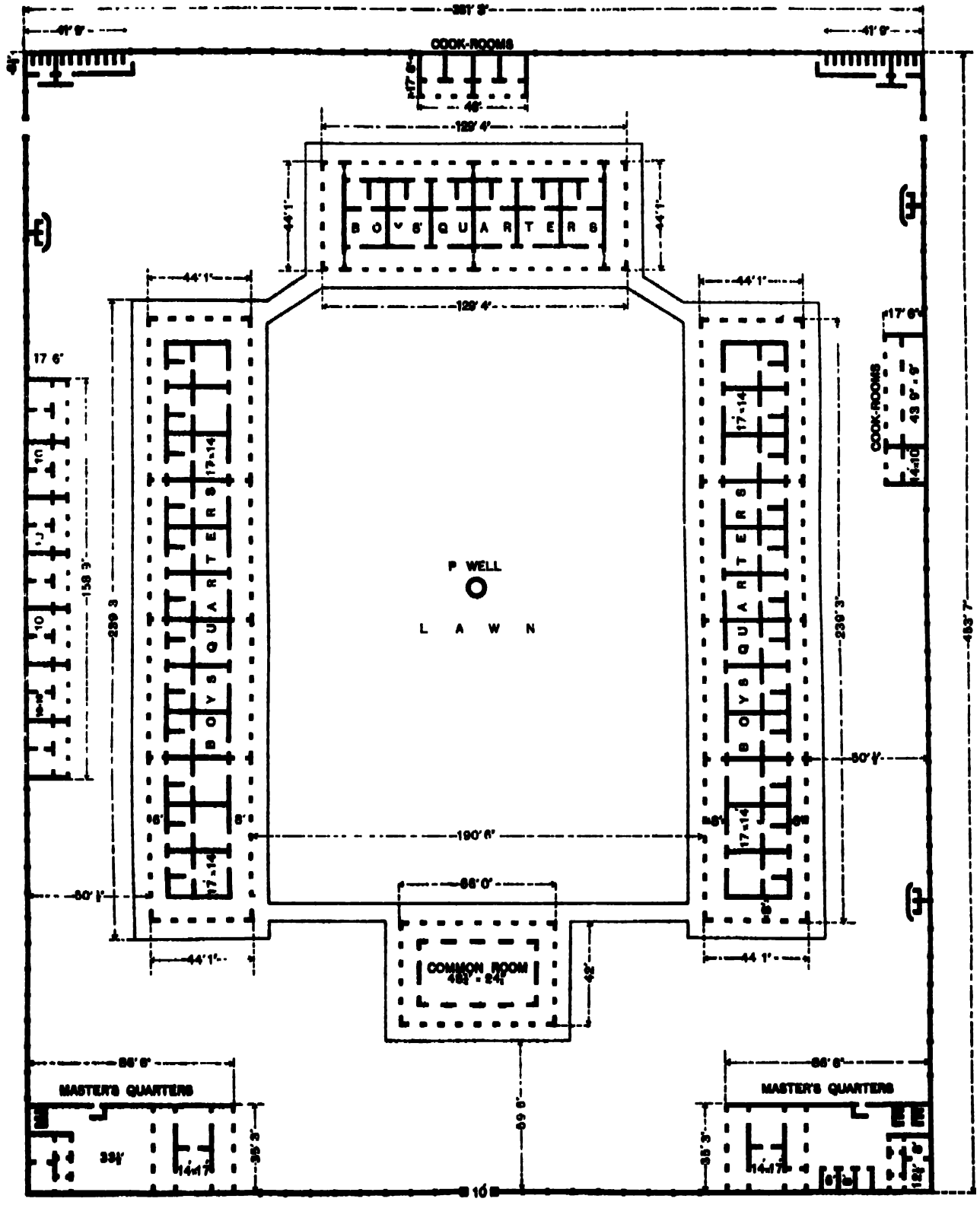
The quadrangle is 157 yds. long and 127 yds. wide, surrounded by a wall and ornamental railing, the gateway of which is locked after evening school.

In the centre is a lawn 80 yds. by 40 yds. and on three sides of this are built the boys' rooms consisting of two rows of twelve each and one of six.

On the fourth side is a large room 48 ft. by 24 ft. where evening lessons are prepared, meetings held, and on Sundays and other holidays indoor games played. Flanking this building in the corners of the quadrangle are houses for the resident masters. Each boy has a bed and sitting room 17 ft. by 14 ft., a small bathroom 9 by 6 ft., a small box room 9 by 10 ft. and a kitchen which is also his dining room 10 by 12 ft. All the buildings are surrounded by verandahs 7½ ft. wide with a bricked pathway 6 ft. wide in front of them. They are built of bricks set in lime covered with cement plaster and have masonry roofs, jack arches and iron girders.

NORTH BOARDING HOUSE.
COLVIN TALUQDARS' SCHOOL, LUCKNOW.

Scale of feet.

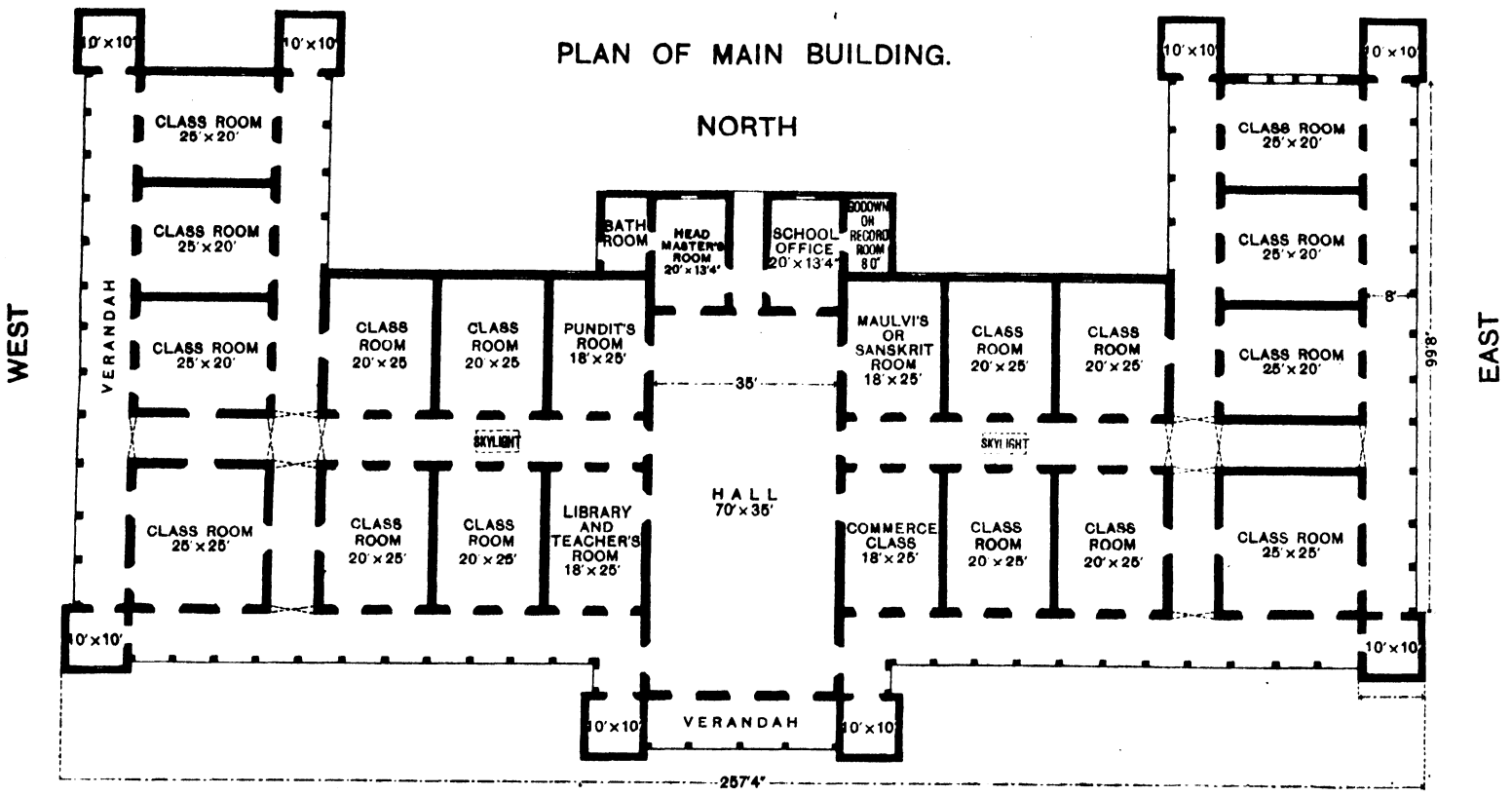


TYPE DESIGN FOR SCHOOL BUILDINGS,
(UNITED PROVINCES).

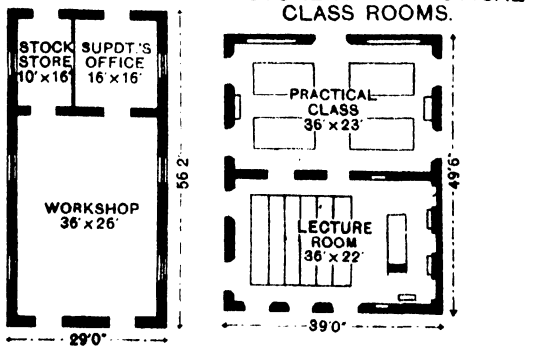
Scale of Feet.

Feet. 10 5 0 10 20 30 40 50 60 70 80 90 100 110 Feet.

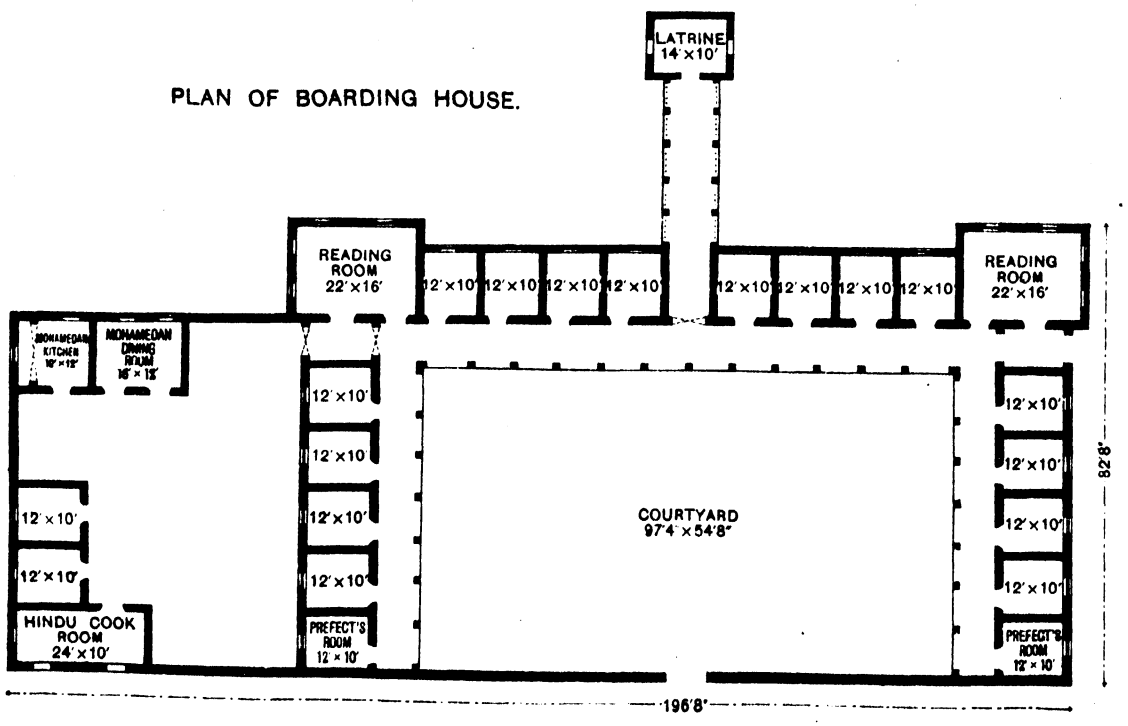
PLAN OF MAIN BUILDING.



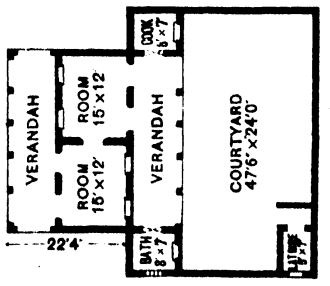
WORKSHOP FOR MANUAL TRAINING. LECTURE AND PRACTICAL CLASS ROOMS.

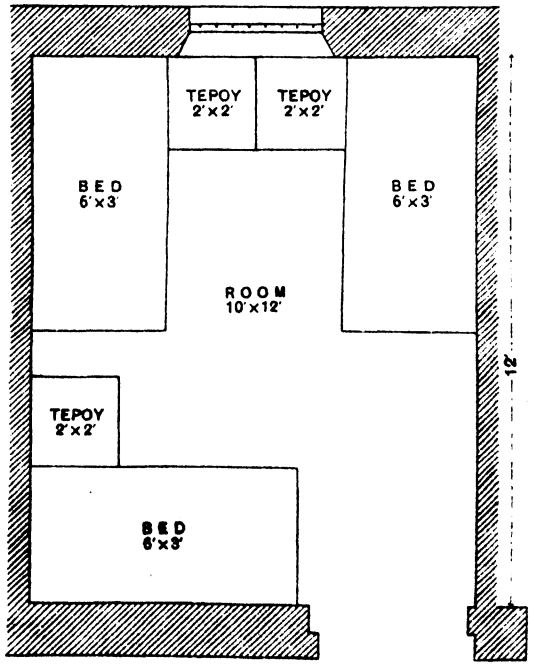


PLAN OF BOARDING HOUSE.



SUPERINTENDENT'S QUARTERS.





Type Plans for High Schools and Boarding Houses, United Provinces.

MAIN BUILDING.—A full-sized school of 400 or 500 boys should be arranged as shown in the accompanying drawings. The building is planned so that extensions can at any time be made or if funds are not available at the outset or so large a school is not required portions can easily be omitted.

The hall should be 70 ft. long by 35 ft. wide and 26 ft. high in large schools. In the case of smaller schools the minimum width should be 30 ft. with a length according to requirements.

Ordinary class rooms.—The minimum size of the class rooms is as shown on the plan—that is 20 ft. by 25 ft.; class rooms should always be arranged lengthwise across the building and placed so that the light comes from the end of the rooms. The height should ordinarily be 18 ft. One such room must be provided for every class or section of a class for general class teaching.

The drawing class room should be placed on the north and be provided with large windows unprotected by verandahs on the north side only. Three clerestory windows may be provided on the north side, but there should be no cross lighting from the sides; the verandah doors should therefore be pannelled. The drawing class room may be a larger room than the ordinary class rooms, if this can be arranged.

Other class rooms.—Smaller rooms (not less than 20 ft. by 15 ft.) should be provided as vernacular language class rooms for the pandit and maulvi and also for a commerce class.

Accommodation must also be found for the following:—(1) Head Master's office with bath room; (2) school office with record room; (3) library and teachers' room; (4) godowns in the corners of the verandahs.

Verandahs should be 8 ft. wide and 12 ft. high.

The building should face north and south as shown, so that the east and west breezes will blow through the central passage and through the wings. All verandahs should be omitted from the north side.

Light and ventilation.—The class rooms should be well lighted and ventilated. For light at least two large glazed doors with circular or square fanlights should be provided for rooms protected by verandahs and for rooms on the north side two large glazed windows; for ventilation and top light, at least 4 clerestory windows should be given in each class room measuring 25 ft. by 20 ft. or more; the doors leading from the class rooms to the passages should be opposite the windows or outside doors to provide through ventilation. There should be no direct communication between adjacent class rooms.

SCIENCE LECTURE ROOM AND LABORATORY.—These should be provided in a separate block as shown in the drawings; the minimum dimensions for these should be 23 ft. by 32 ft. and 23 ft. by 36 ft., respectively.

WORKSHOPS FOR MANUAL TRAINING.—These should be arranged in a separate building as shown in the plan.

BOARDING HOUSE.—The boarding house should be arranged as shown in the plan.

Accommodation required in each boarding house block:—Rooms for 50 boys with one or two reading rooms for preparing lessons and verandahs 7 ft. wide, cook house for Muhammadans, cook house for Hindus, enclosure walls, latrine and covered way.

These are all within the enclosure, which can be locked up at night. The rooms for boarders should accommodate three boys each, neither more nor less, and should provide space for a bed and teapoy for each boy; the minimum size is 12 ft. by 10 ft. or 40 sq. ft. per boy.

A well and bathing platform should be provided at a convenient distance outside the quadrangle.

The quadrangle must be well drained by a *pucka* drain running round the edge of the verandah.

COOK HOUSES.—The cook houses for Hindus should give 15 sq. ft. for each boy's cooking place and should be well ventilated. For Muhammadans one cook house with a *chula* range and chimney should be provided where one cook can cook for all the boys, and a dining room will be necessary for the boys to make their meals in.

LATRINES may be of any good standard pattern, but they must be enclosed, and the passage leading to the boarding house must be closed by iron gratings.

SUPERINTENDENT'S QUARTERS.—Detached quarters for the boarding house superintendent should also be provided as shown in the drawing sheet.

SERVANTS' QUARTERS of the ordinary pattern, without verandahs.

Brief Specifications.

MAIN BUILDINGS—The elevation may be designed to suit local conditions :—

Foundations—Will be of lime concrete throughout.

Plinth—Will be of 1st class bricks in lime and 2 ft. high above ground.

Superstructure.—Will be as follows :—(1)Exposed walls of 1st class bricks in clay, jambs of doors and windows, arches, tops of walls, parapets, etc., being in lime. (2) Unexposed bearing walls will be of 2nd class bricks in clay, trimmings being of 2nd class bricks in lime. (3) Partition walls will be of 3rd class bricks in clay, trimmings being of 2nd class bricks in lime. The inside of the building will be lime rubbed and whitewashed and outside lime pointed.

Verandahs—Will be lime pointed.

ROOFS—Will be as follows :—(1) Hall roof will be of double Allahabad tiles on sal wood supports and will be provided with an X. P. M. ceiling. (2) The outer verandahs, the head master's bath room and the godown will have single Allahabad tiles on sal wood scantlings. (3) The roofing of the class rooms will be of jack arches of 1st class bricks covered with lime concrete. The arches will rest on rolled steel girders. (4) The passages will have tied arches covered with lime concrete.

The skewback of the tied arches and the wall for 9 in. below the springing will be of 2nd class bricks in lime mortar.

The doors and windows will be of teak wood set in sal wood frames and the sills of doors will be of stone.

The flooring will be of 1½ in. flagged stones on 3 in. lime concrete.

SCIENCE CLASSES AND WORKSHOPS FOR MANUAL TRAINING.—Specification as for main building.

BOARDING HOUSE :—*Foundations*—Will be of 2nd class bricks in lime on lime concrete.

Plinth—Will be of 2nd class bricks in lime.

Superstructure—Will be as follows :—(1) Exposed walls of 2nd class bricks in clay, the jambs of doors and windows, arches, tops of walls, etc., being of 2nd class bricks in lime. (2) All unexposed walls will be of 3rd class bricks in clay with the exception of the usual trimmings, which will be of 2nd class bricks in lime.

Roof—Will be of jack arches on R. S. beams and finished off with lime concrete in main roofs. Verandah roof will be of single Allahabad or lock tiles on sal wood scantlings.

Flooring—Main rooms will have 4 ft. 2 in. terraced lime concrete and verandahs brick-on-edge on 3 in. lime concrete.

Doors and windows—Teak wood in sal frames.

The inside of the building will be lime rubbed and whitewashed; outside, including verandahs, lime pointed.

COOK HOUSES FOR STUDENTS :—*Foundations*—Of 2nd class bricks in lime on lime concrete.

Plinth—Of 2nd class bricks in lime.

Superstructure—Will be of 2nd class bricks in clay with the exception of the usual trimmings.

Roof—Single Allahabad tiling on sal wood scantlings.

The inside of building will be lime rubbed and whitewashed and outside lime pointed.

Doors and windows—Of country wood in sal wood *chaukhats*.

SUPERINTENDENT'S QUATRERS :—*Foundations*—2nd class bricks in lime on lime concrete.

Plinth—2nd class bricks in lime.

Superstructure—3rd class bricks in clay with the exception of the exposed walls and the usual trimmings, which will be of 2nd class bricks in clay and 2nd class bricks in lime, respectively.

Floors.—Main rooms will have 4½ in. terraced concrete verandahs, 4½ in. brick-on-edge on 3 in. concrete, and kitchens and latrines will have stone flagged or cement conglomerate floors.

Roofing.—Main rooms will have jack arched roof on R. S. beams covered with concrete terracing; verandahs, kitchens and latrines will have single Allahabad tiles on sal wood scantlings.

Doors and windows—Will be of country wood in sal wood *chaukhats*.

Inside of rooms to be lime rubbed and whitewashed and outside lime pointed.

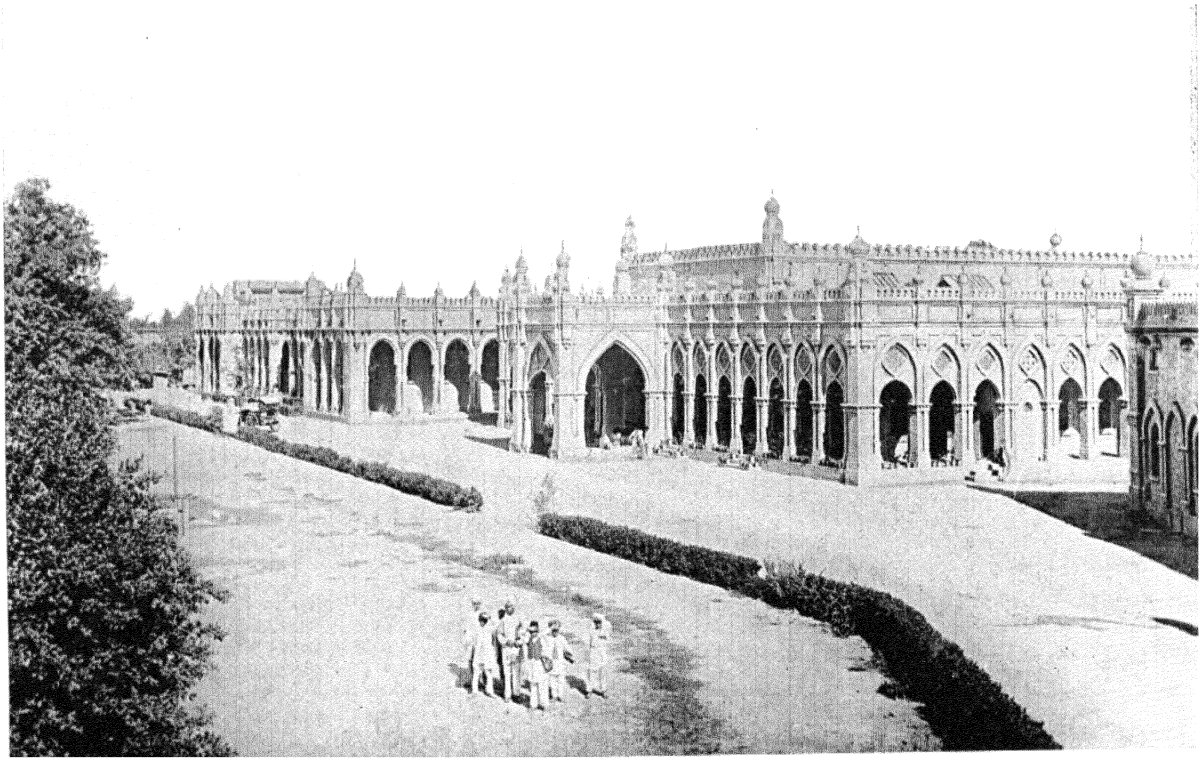
ENCLOSURE WALLS OF BOARDING HOUSE.—The enclosure walls will be of 2nd class bricks; the foundations will be of 2nd class bricks in lime on lime concrete. The plinth will be of 2nd class bricks in lime. The superstructure will be of 2nd class bricks in clay strengthened by pillars of 2nd class bricks in lime.

The sides of the enclosure walls will be lime pointed and the top lime plastered.

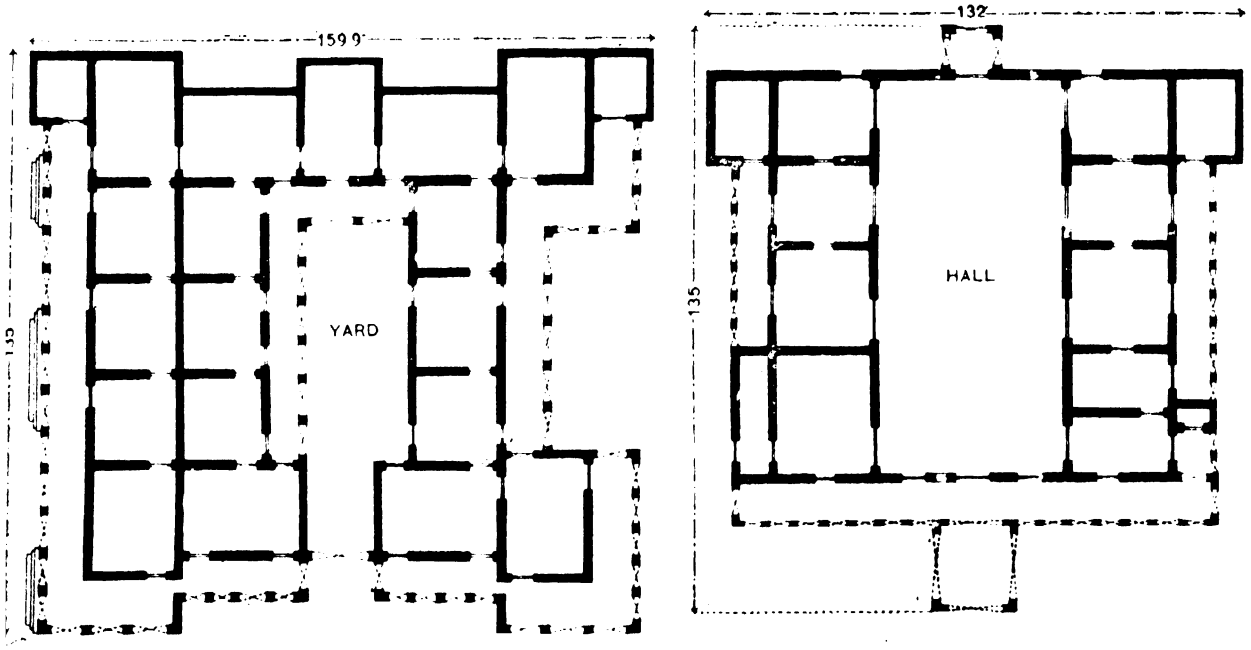
LATRINES FOR STUDENTS AND THE COVERED WAY.—The walls will be of 2nd class bricks in clay with the exception of foundations, plinth, superstructure walls up to a height of 2 ft. above plinth, tops of walls, jambs of doors and other openings, pillars and arches, which will be of 2nd class bricks in lime. The roofing will be of single Allahabad tiling on sal wood scantlings. The flooring of the latrines will be of stone flags or cement conglomerate and that of the covered way will be of brick-on-edge over 3 in. lime concrete.

ROUGH ESTIMATE.—The approximate cost of the buildings will be as follows:—

Name of building.	Plinth area.	Rate.	Cost.
	sq. ft.	Rs. A. P. per sq. ft.	Rs.
(1) School building	24,554	2 2 0	52,177
(2) Science block	1,931	2 8 0	4,828
(3) Workshops	1,628	1 12 0	2,849
(4) Boarding house	6,020	1 10 0	9,782
(5) Cook house for Muhammadans	482	1 8 0	723
(6) Ditto Hindus	645	1 8 0	967
(7) Enclosures walls to (3) and (4)	...	...	316
(8) Latrine and covered way	502	2 8 0	1,255
(9) Well and bathing platform	Lump sum		740
(10) Superintendent's quarters	1,331	1 10 0	2,163
(11) Outhouses	10 houses	120 0 0 each	1,200
(12) Fencing roads, gates, etc.	Lump sum		3,000
TOTAL	...	...	80,000



GOVERNMENT CENTRAL MODEL SCHOOL, LAHORE.



PLAN.

The Central Model School, Lahore.

The Central Model School occupies two of the extensive group of buildings which comprise the Lahore Training Institution. The site, although outside the city, is less than a quarter of a mile from two of its main gates, and the school is therefore conveniently situated for pupils residing outside as well as within the city walls.

The older of the two buildings was erected as a district board school in the year 1884 before the training college was built. The cost, about Rs. 45,000, was mainly defrayed by the Lahore Municipality supplemented by a grant from Government. When the scheme for the establishment of a training college for secondary teachers was first initiated, the school was considered to be in every way suited to the purposes of a practising school, and the college was therefore erected on the ground adjoining. The extent of the site occupied by the school buildings and playground is approximately 180 yds. by 120 yds.

The original building consisted of a single line of class rooms built round a quadrangle and surrounded on all sides except the north by verandahs, 10 feet wide. With the expansion of the school it was found necessary in 1894 to add a second line of four class rooms on the western side, adjoining those already existing. Originally all the rooms received plenty of light and air from the outside in addition to what was received from the quadrangle. But, with the doubling of the line of rooms on the west, light and air are available on only one side, and in the case of the inner line of rooms, whose source of light and air is from the quadrangle, lighting and ventilation are defective.

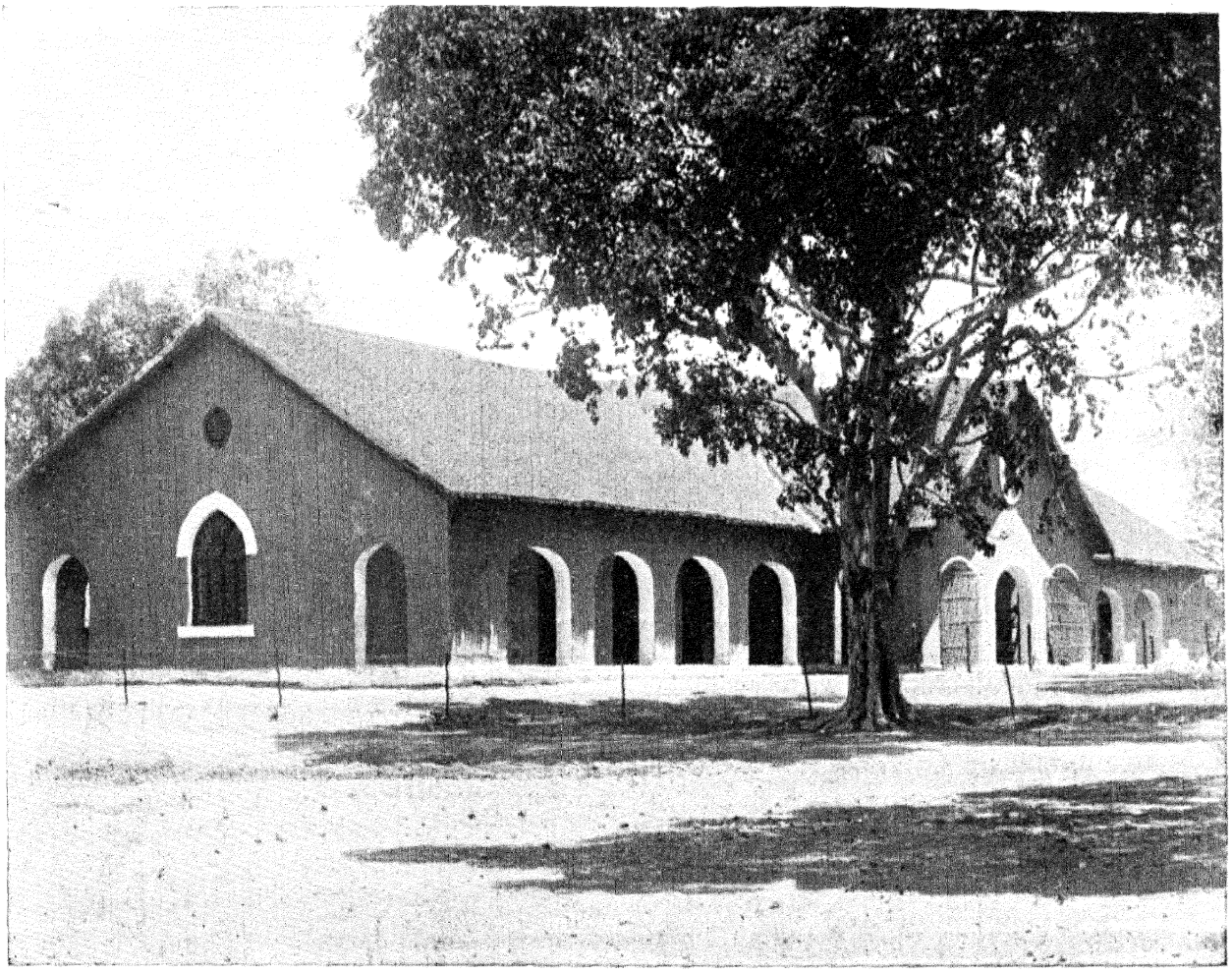
Directly opposite the entrance to the quadrangle is a science lecture room used for the students of the middle department. This room measures 30 ft. by 18 ft. and can accommodate about 60 students. Of the other class rooms four are 32 ft. by 26 ft., and the remainder are 22 ft. by 20 ft., which is not insufficient for classes of 40 boys, the maximum allowed by the Education Code. The seven rooms on the east of the building are occupied by the middle department, and the 11 rooms to the west by the primary. This block occupies an area of 156 ft. by 120 ft.

By 1903 the school with more than 600 scholars had outgrown its accommodation, and overflow classes were being taught in rooms in the training college. The reorganisation and extension of that institution with a large increase in the number of students under training rendered the enlargement of the school imperative, and the new building was erected by Government at a cost of about Rs. 60,000.

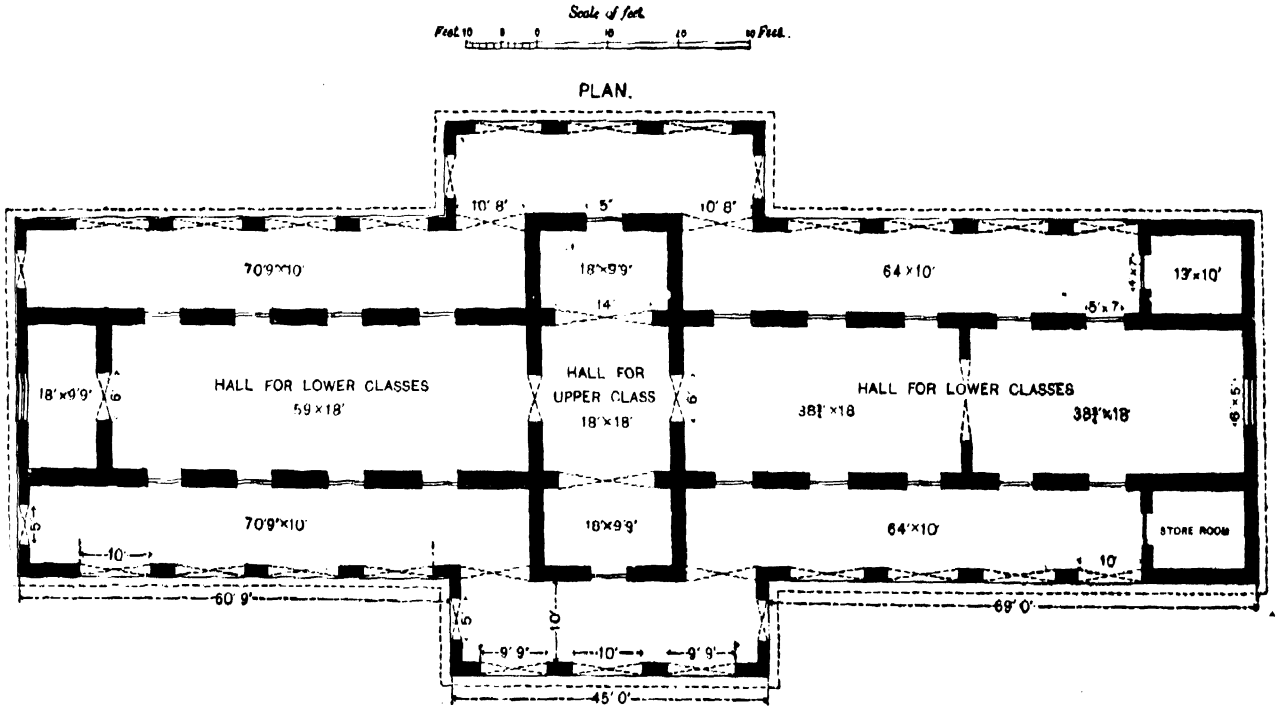
This measures 100 ft. by 100 ft. and consists of a central hall flanked on the west by a science lecture room and three class rooms, and on the east by three class rooms, an office and a headmaster's room. The hall is of one span 96 ft. by 45 ft., the roof being supported by steel beams. This large hall is not only of great use for house examinations but has also been utilised for departmental and university examinations.

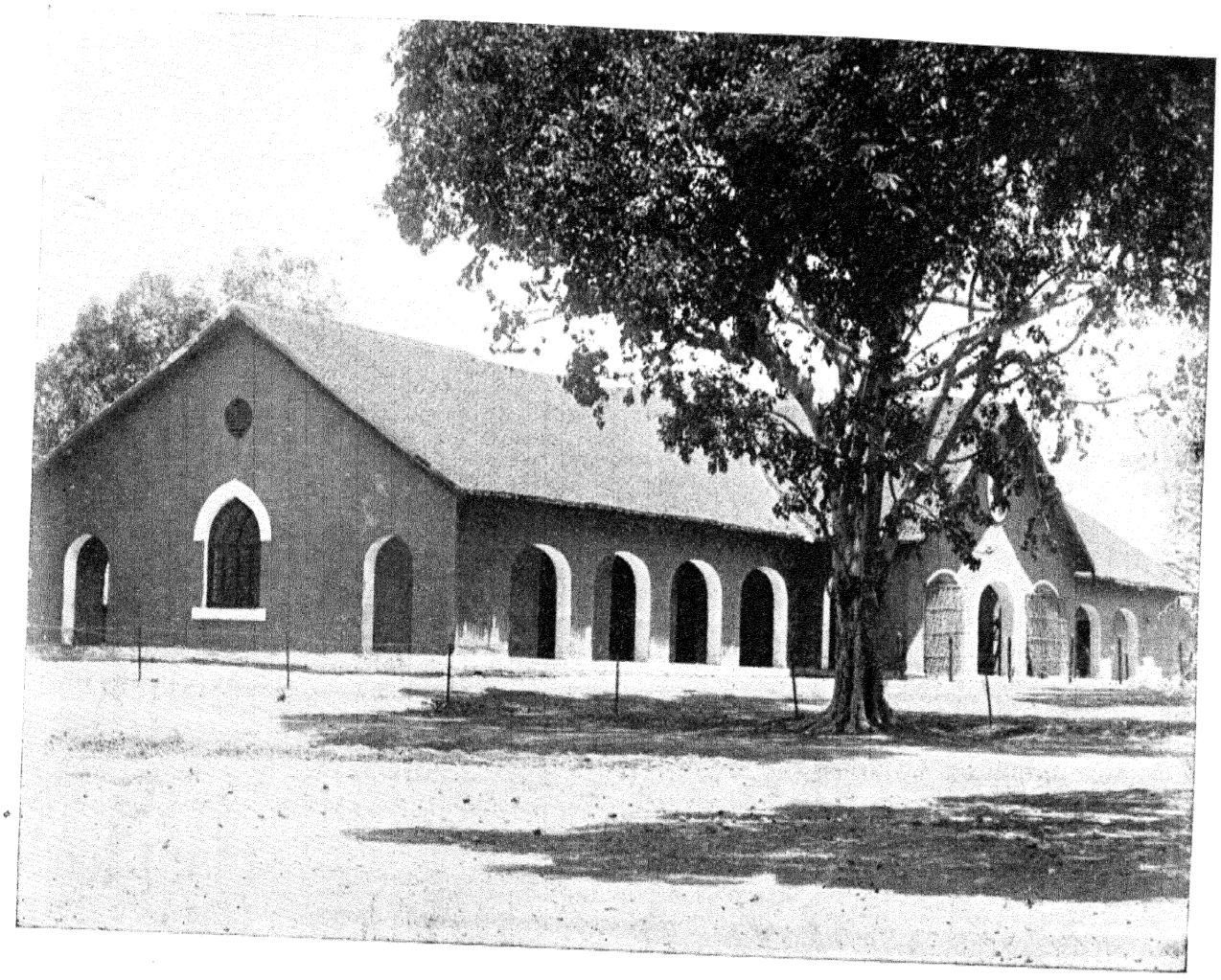
The science room can accommodate 80 students and is fitted with a supply of gas and water. The verandah on the west of the science gallery has been fitted up as a small laboratory with benches, each supplied with gas and water, for 14 students. The class rooms in this block receive direct light and air from only one side, and although there are large glazed doors opening into the hall the need of additional light and ventilation is felt during the summer and in the rains. The class rooms in this block are occupied by the high department.

This building like the other has verandahs on three sides, the ends of the eastern and western verandahs being enclosed to form small rooms for the Sanskrit and Arabic teachers. There are at present 900 boys on the rolls divided into the ordinary 10 classes in 25 sections. The staff consists of a head master in the Indian Educational Service with 40 assistants including special teachers for Science, Sanskrit, Arabic, Persian, drawing, kindergarten, commercial subjects and drill.

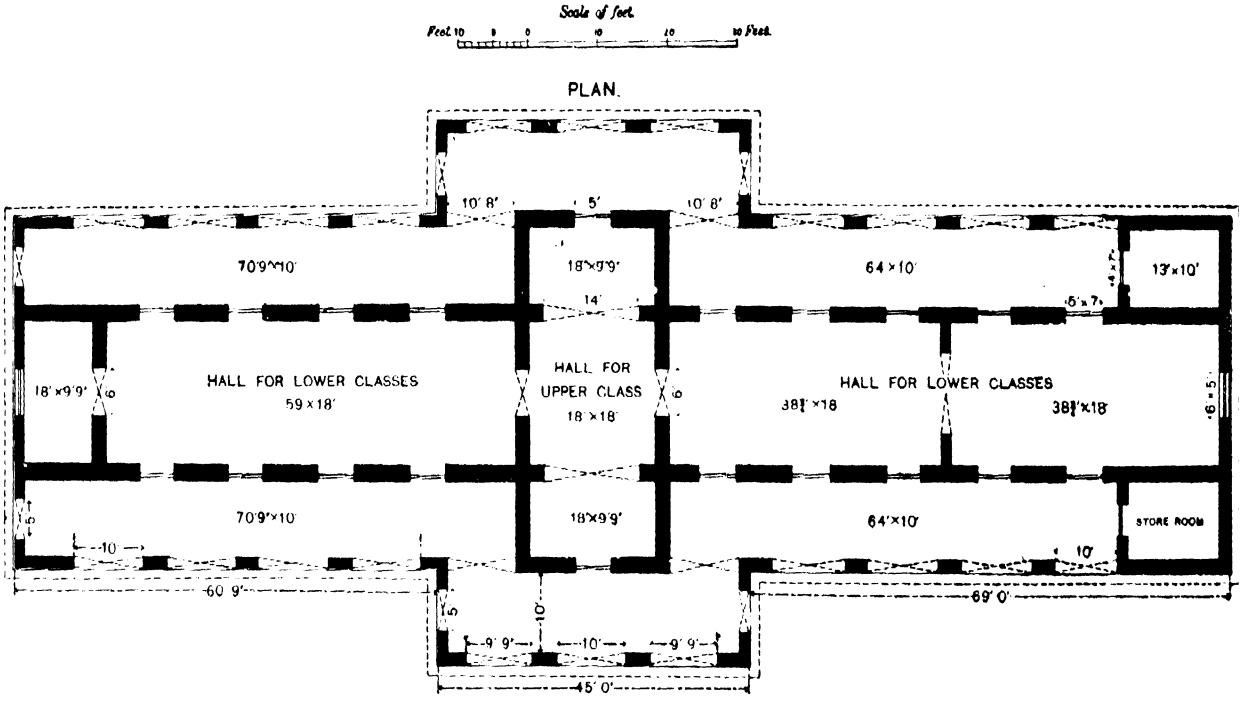


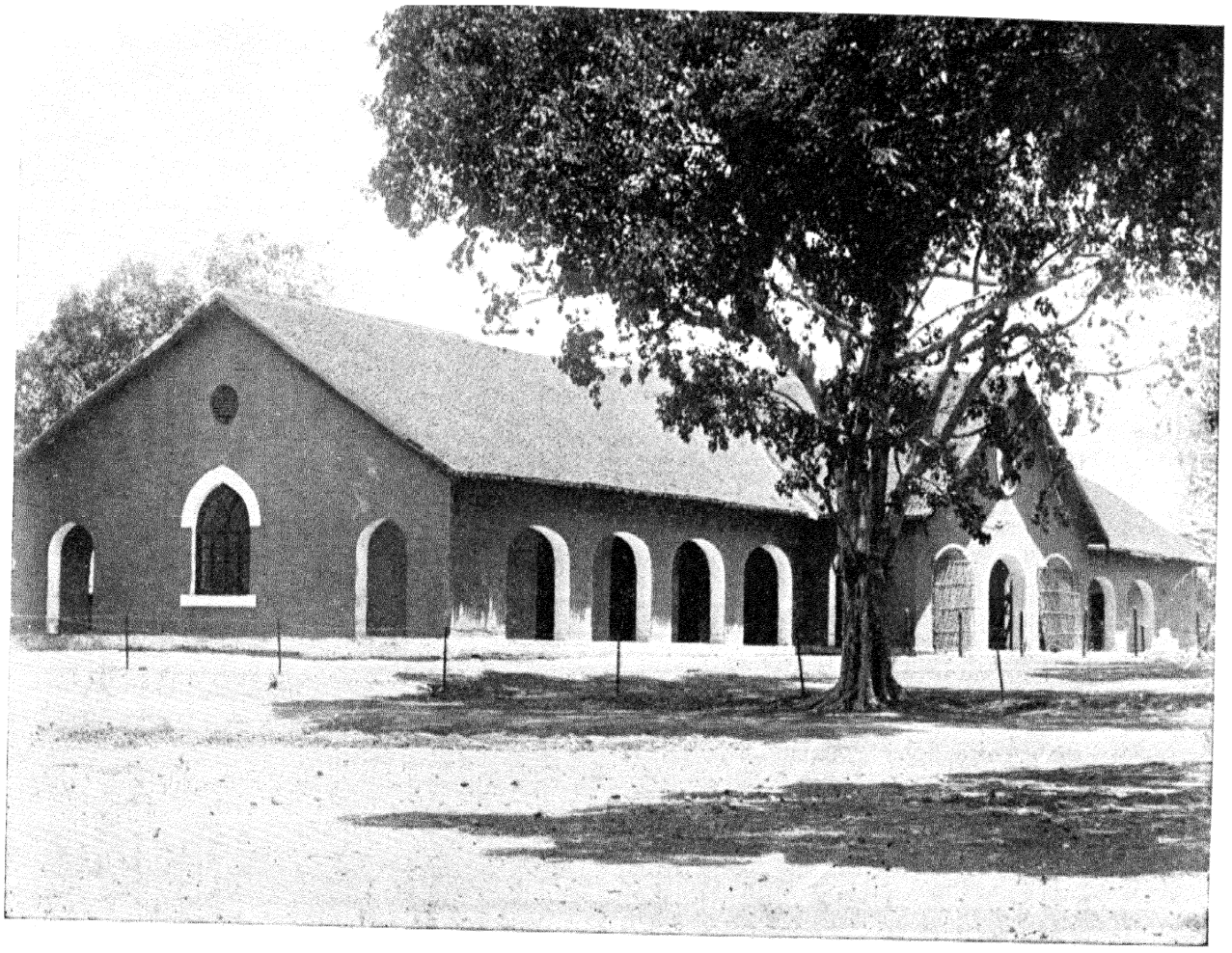
ANGLO-VERNACULAR MIDDLE SCHOOL, NARSINGHPUR.



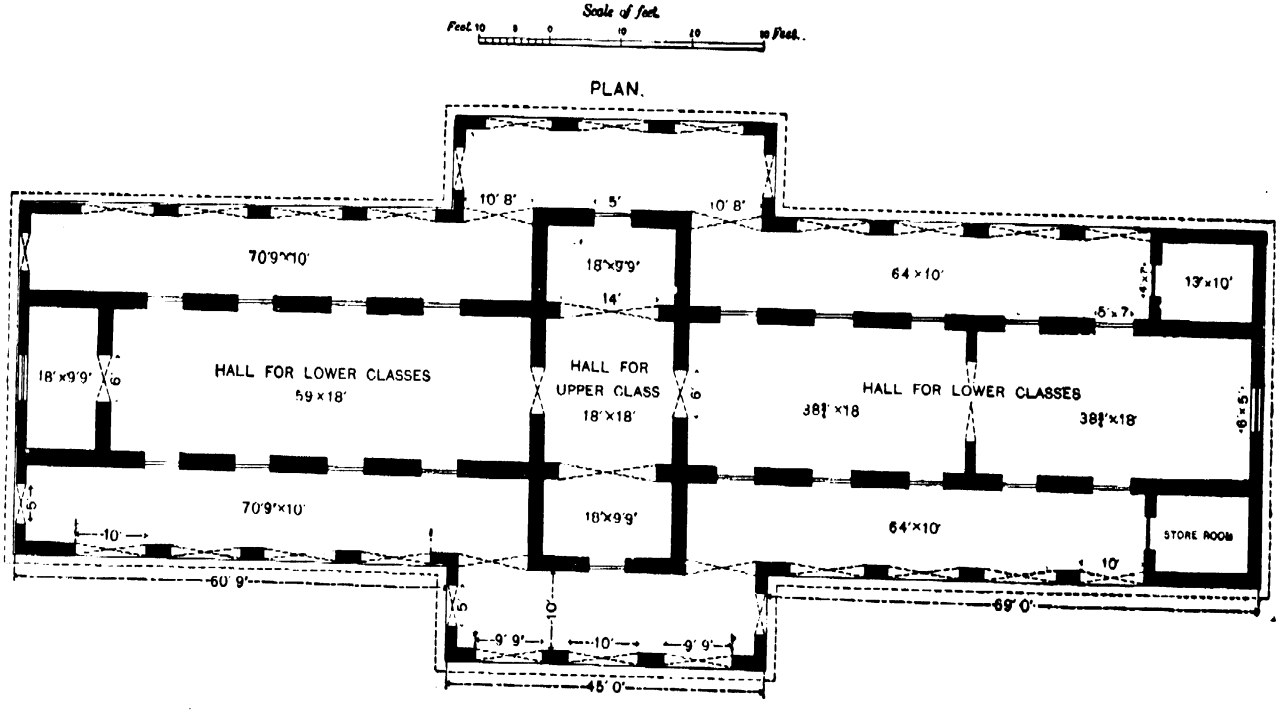


ANGLO-VERNACULAR MIDDLE SCHOOL, NARSINGHPUR.

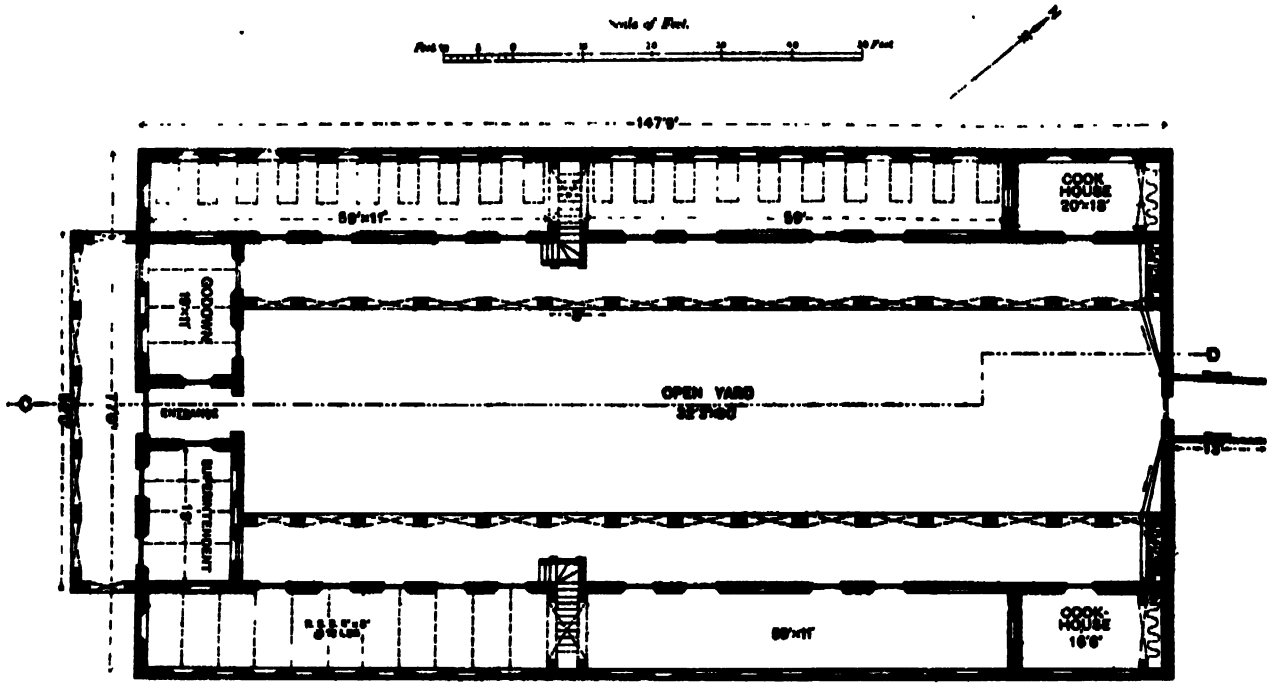




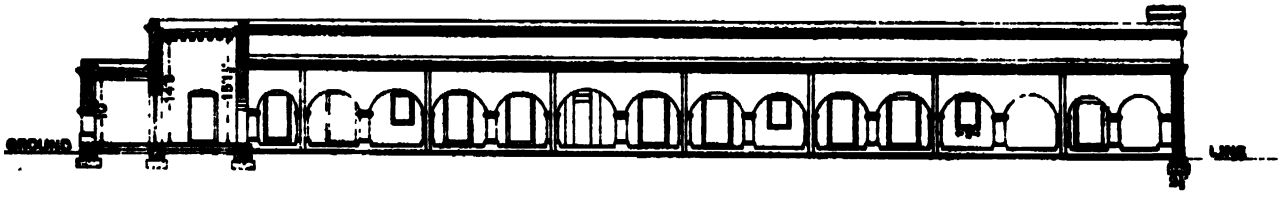
ANGLO-VERNACULAR MIDDLE SCHOOL, NARSINGHPUR.



BOARDING-HOUSE,
MUNICIPAL HIGH SCHOOL, LYALLPUR.



SECTIONAL ELEVATION ON C D.



Boarding House of the Government High School, Lyallpur.

This school, which was raised to the status of a high school in September 1905, was originally started as an Anglo-Vernacular middle school in 1897, and before the Lyallpur district was constituted on 1st December 1904, had been maintained by the District Board, Jhang. Lyallpur very rapidly grew to a municipal town and the institution was placed under the management of its municipal board on the 1st of April 1901. Soon after, in January 1905, the school was provincialized and taken over by Government. Just before this, the present school building had been built. The present boarding house, too, had been taken in hand by the municipality and was made over to the headmaster after completion in August 1905.

The entire school compound measures about an acre, and the building of the boarding house faces the rear of the school building at a distance of about 150 yds. and stands in a beautiful lawn that serves the purpose of a playground for the boys.

The boarding house building is in the form of a quadrangle 117 ft. 9 in. by 77 ft. on the outside, into which two doors open. It is a one storeyed building of which the plinth is sufficiently high to prevent the walls from waterlogging. The entire building possesses a *pucka* floor. The roofs of the barracks and rooms are supported on iron girders and wooden beams while the roof of the verandah stands only on wooden beams.

The boarding house accommodates 43 boarders. It is well lighted and ventilated, there being 30 windows, 20 side lights and 20 man holes. The windows are provided with strong iron bars. There are 20 recess almirahs in the walls.

Government Anglo-Vernacular School, Thazi.

This institution consists of two buildings, one used as the school and the other as a hostel, put up by Government at a cost of about Rs. 1,00,000.

The site has been judiciously chosen and places the school about 30 ft. above the rest of the town, giving it thus a commanding appearance, and at the same time allowing it a full share of the cool breeze which blows almost constantly throughout the year and is the main support against a fierce heat not unlike that of the Punjab.

The school house.—This building stands on a base in shape exactly like the letter H, lying east and west: four sets of three equal sized class rooms 30 ft. by 15 ft. connected in pairs, with a passage 10 ft. wide between each pair, by a large drill or assembly hall 60 ft. by 30 ft. On either side of this hall are verandahs 10 ft. wide which lead into it by four doors and run past the set of class rooms on their inner sides. Each class room has a door leading into either of these verandahs. Two other verandahs 7 ft. wide run along the north and south ends, the class rooms having doors opening into these also. There are no verandahs to the class rooms exposed east and west which are supplied each with four large windows. The walls all round run to a height of 18 ft., and the roof, which is of shingle, has its ridges 12 ft. above the eaves. Wire netting to keep out sparrows connects the wall with the roof. There are also sky-lights. The materials employed are mostly wood, bricks and mortar being used to fill up the wooden framework of which the walls consist, the thickness of the walls thus being a little more than half a brick. This process of building ('brick-nogging') is in vogue in almost the whole of Upper Burma, and is considered not only cheaper but a safeguard against earthquakes.

The hostel.—The other building used for a hostel is about 95 yds. from the school house on its north side and connected with it by an avenue of neem trees. The design is simple: on a rectangular base 140 ft. by 40 ft. It is a double storeyed building, the rooms on the lower flat which are tiled having their walls of a construction similar to that of the school house, while those upstairs are entirely of wood. Downstairs, in the centre of the building, there are for the use of the boarders one large room 40 ft. by 20 ft. for preparation and two others each 20 ft. square used as dining and reading rooms respectively. Between the room first mentioned and the two latter is a passage 10 ft. by 20 ft. connecting the two verandahs which run east and west in the front and the back of these rooms. Upstairs immediately above these three rooms and the passage is the dormitory 90 ft. by 20 ft., having verandahs both in front and back, of the same dimensions as those downstairs. At either end of the building adjoining these rooms both downstairs and upstairs are two rooms on the ground floor 6½ ft. by 20 ft. and two of corresponding dimensions immediately above, with private verandahs to each set facing east and west. These rooms are for the use of resident masters. Part of the verandah at the back of the dormitory has been taken at each end for bath rooms to the teachers' quarters. The walls downstairs are 12 ft. high and those upstairs 14 ft. The roof of this building also is ridged and of shingle. There are six staircases, two leading to the dormitory from the back and front, two leading into the teachers' verandahs at the ends and two more at the back connecting the teachers' bath rooms. A few yards away from the building at the back are three kitchens, two of which are for the use of the resident teachers, the centre one and the largest for the boarders.

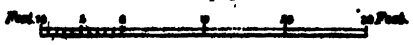
The servants' quarters are in the north-west, and 36 yds. further west of these is the boarders' bath room, zinc all round both roof and sides, with a paved tank in the centre 31 ft. by 4 ft.

The compound.—The space within the compound not being sufficient at any place f a good football ground a separate plot 600 ft. by 450 ft. has been closed in on the east end.

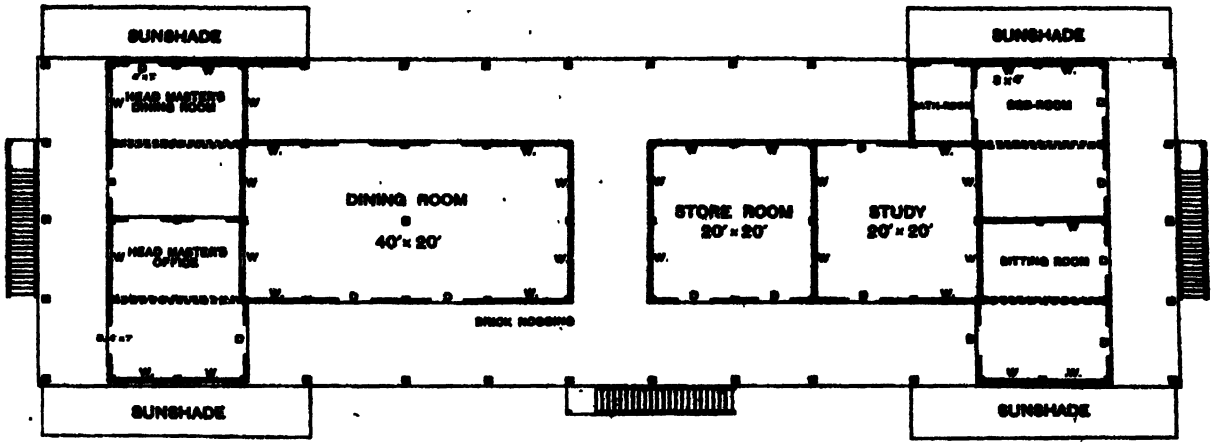
GOVERNMENT HIGH SCHOOL, THAZI, BURMA.

BOARDING-HOUSE,
ANGLO-VERNACULAR SCHOOL, THAZI

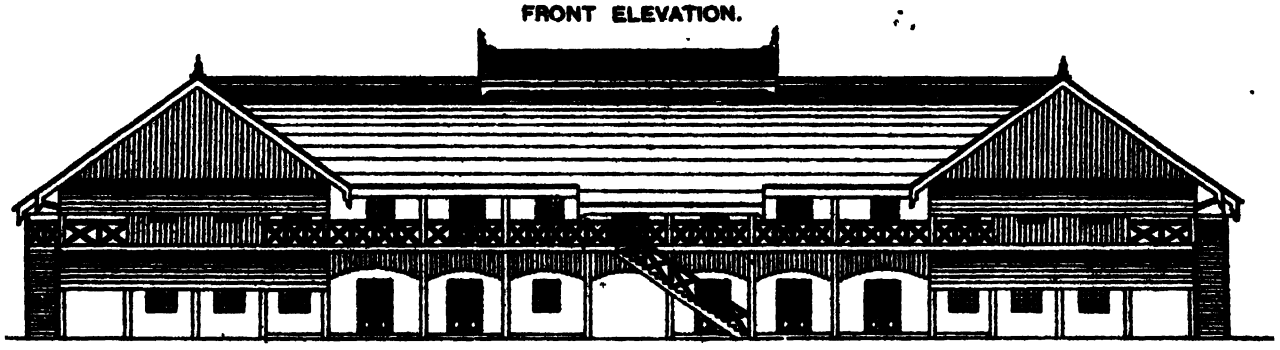
Scale of feet.



GROUND FLOOR.

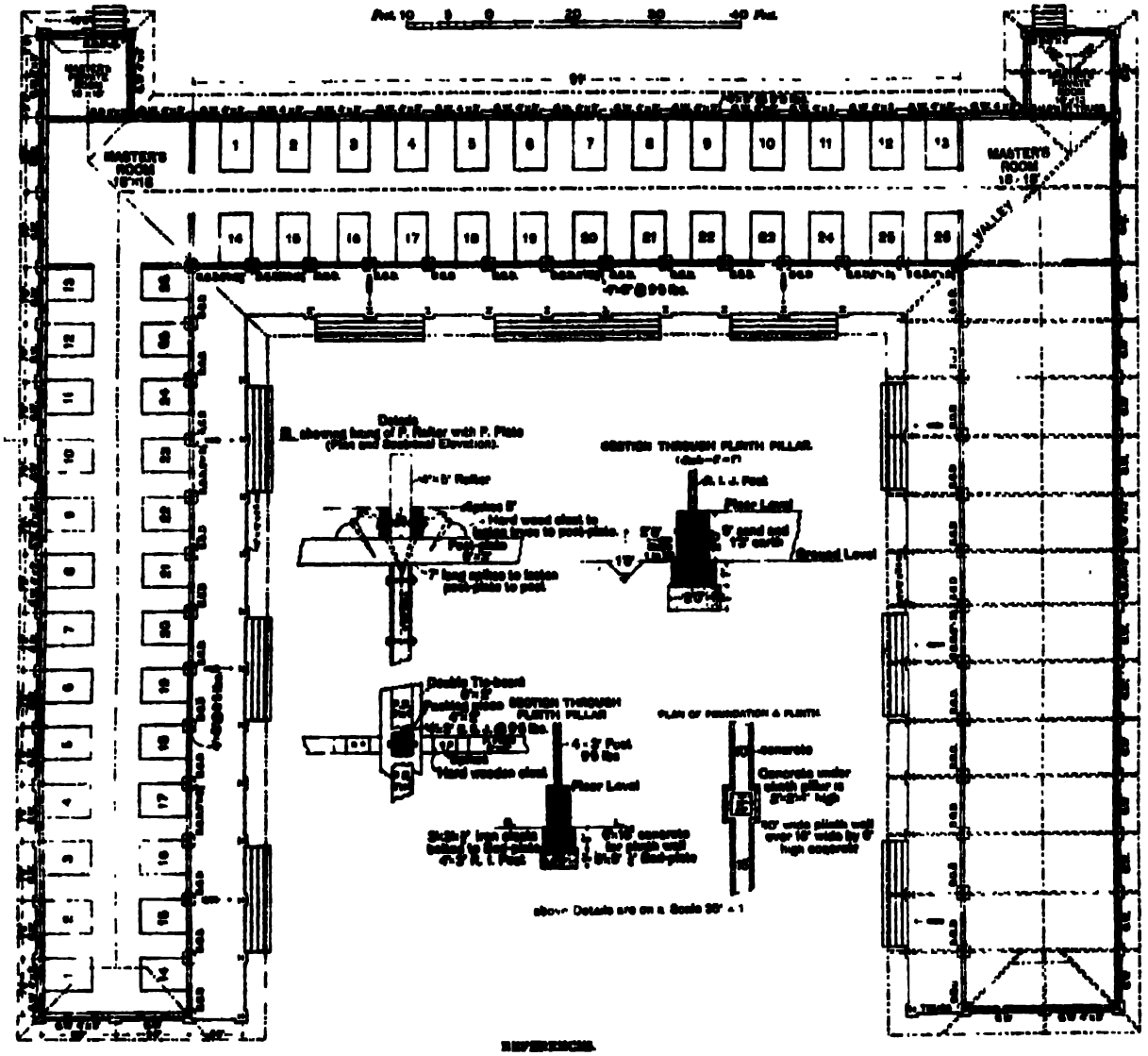


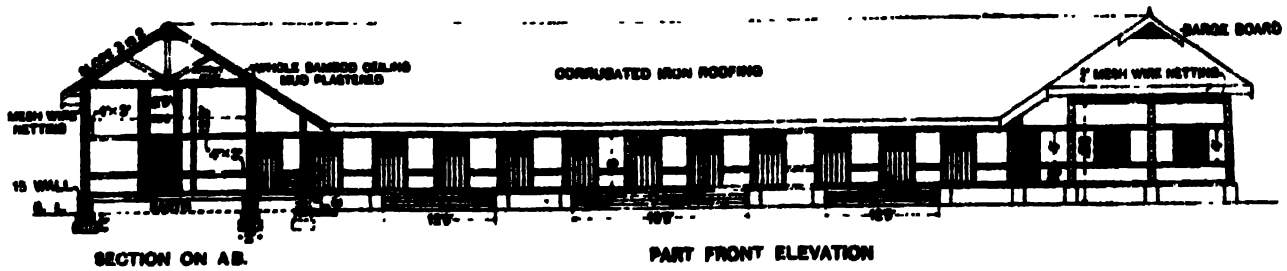
FRONT ELEVATION.



TYPE PLAN FOR HOSTEL FOR 75 BOYS, EASTERN BENGAL AND ASSAM.

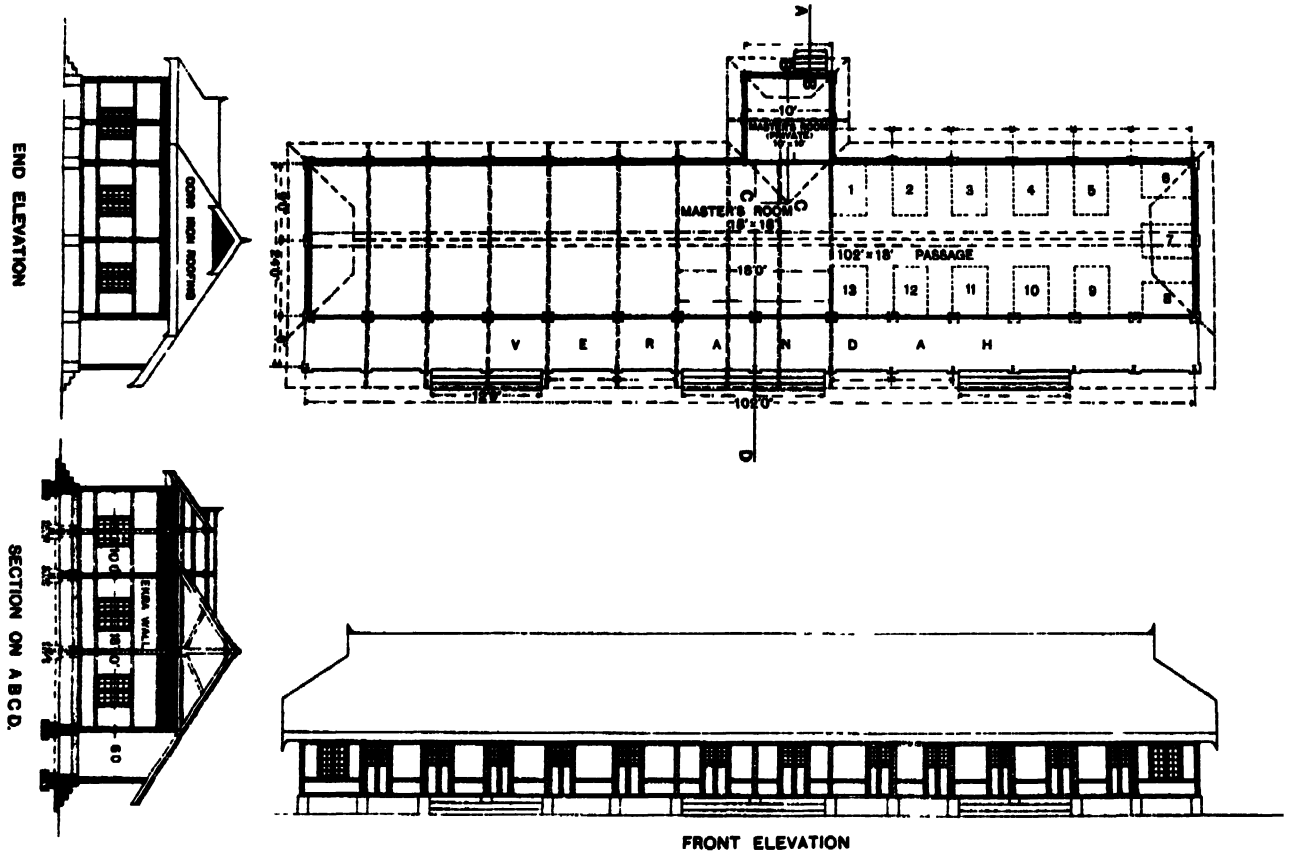
Scale of Feet.





TYPE PLAN FOR HOSTEL FOR 25 BOYS, EASTERN BENGAL AND ASSAM.

Scale of feet.



Type-plans of hostels, Eastern Bengal and Assam.

The objects aimed at in framing these type-plans were good ventilation, proper supervision and cheapness. The buildings erected are intended for boys of high schools, and are generally attached to aided institutions. Government gives a grant towards their construction; and they are managed by local committees under departmental rules and on suitable conditions.

The plan for 25 boarders may be taken as representative of the others. The internal measurements are 102 ft. by 18 ft. and there is a 6 ft. verandah in front. It has been found that 18 ft. is the most convenient breadth. The verandah is set to face the direction of the prevailing wind generally south-west or south-east. Thus a thorough draught is secured through the building. Further, an opening about 2 ft. broad, protected by wire netting, runs along the whole building under the ceiling and permits the escape of vitiated air.

Partition walls are not permitted in these hostels. There has been some opposition to this plan, as an opinion is current that study in a long room, with many occupants learning their lessons aloud, is impossible. The prejudice, however, is departing; and if it carries away with it the practice of learning lessons aloud, so much the better. The absence of partition walls (low screens of about 5 ft. in height, with a broad open passage between running the length of the dormitory) serves not only to ensure ventilation but also to facilitate supervision. A resident master always occupies the middle portion of the dormitory with a small private room jutting out behind. In the plans for larger hostels, the superintendent's room is so placed as to permit of his exercising vigilance through each wing. For 75 or more boys, two superintendents are required; and, in the plan for 100, each superintendent is again enabled to get a clear view through the whole of his half of the hostel.

The building lends itself to light material—masonry plinth, frame-work of timber or metal, wall-panels of *ekra* or bamboo, and corrugated iron roof. Rates vary locally; but such a building can generally be constructed for about Rs. 2 per square foot. As there is a great demand for such buildings, and as local contributions and provincial funds available for grants in-aid are limited, a cheap form of building is requisite. The type of construction is suitable to the country and climate. It involves, of course, considerable outlay on repairs from time to time. But given careful repairing, the buildings are likely to be durable. And they approximate to the type universally employed in the larger villages of Eastern Bengal and Assam for private dwellings. At the same time, the plan permits of construction in mud or sun-baked brick in those (drier) parts of the country where this material is available and is ordinarily employed. And, in one instance, a large *pucka* hostel has been erected on this ground plan, though the superstructure naturally shows considerable variation, the roof being terraced, etc.

The buildings are unpretentious, but the long line of frontage (even when surmounted by an iron roof) has a distinctly pleasing effect. Unostentatious buildings, depending in appearance on length rather than height, and on broad lines and shadows rather than on detail, are particularly suitable in this country of large flat spaces and broad low masses of foliage.

The dormitories are sufficiently large to permit of study. But the central space is sometimes expanded into a hall, where the boys prepare their lessons. Cook-houses and a separate dining hall form necessary adjuncts to these hostels.

The type-plans were drawn three years ago; and revision is proceeding as experience dictates. On the whole, they have proved most satisfactory. But in one point, namely, provision for protection against heat, they are defective. Corrugated iron roofs are largely in use in Eastern Bengal; but they possess the disadvantage of keeping the building at a very high temperature during the hot months. The climate of this part of India is not so hot as to make this disadvantage insuperable—as the popularity of the "tin roof" testifies. But the building can be kept at a reasonable temperature by the simple device of placing the ceiling some three feet below the termination of the posts which support the roof and leaving the intermediate space open all round. Thus a free current of air plays between roof and ceiling. And, if the ceiling is further constructed of whole bamboos, surmounted by matting with a layer of earth above, the building will always remain comfortably cool. Cross-sections have been drawn showing this modification; and hostels are now constructed according to this revised plan.

Government High School, Hoshangabad.

The building in which the Hoshangabad Government High School meets is situated on the left bank of the river Nerbudda, on the site of an old fort which was built about 1720 A.D. and was once a very massive stone building of regular shape with its base on the river commanding the road to Bhopal. There is probably no school with equally good surroundings and in an equally fine situation. The scene as viewed from the school building is extremely fine, as on the opposite side of the river there are picturesque ranges of hills.

At the south-west corner there is a private garden which it is under contemplation to purchase for extending the existing compound. It is much required as a portion of the grounds has been occupied by the extensions that are being made to the main building.

The present school building, the cost of which is estimated to have been about Rs. 25,000, was designed by Mr. G. G. White, Executive Engineer, and built entirely at the cost of the residents of the district.

It was commenced in June 1893, completed in December 1894, and declared open on the 2nd of January 1895.

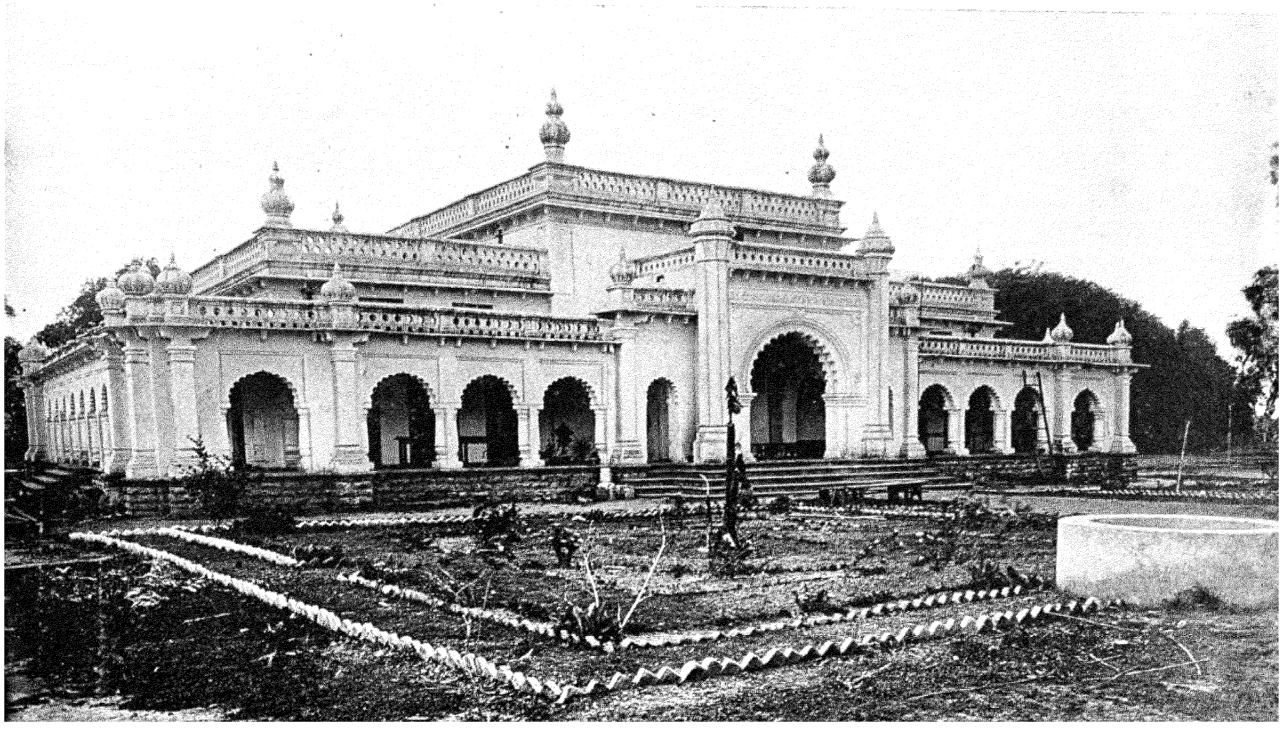
The main building measures about 93 ft. by 75 ft. and consists of a central hall 52 ft. by 26 ft. by 24 ft. used daily for class work, for office work, and for imparting instruction in drawing. The chief defect of the central hall is the excessive reverberation of sound which makes it unfit for the teaching of two classes at the same time. Two rooms each 21 ft. by 20 open into the hall by means of folding doors, and, with the hall, serve for the purposes of the annual meetings, drawing and university examinations. The plinth of the building is 3 ft. high, the floor being of dressed flag stones. Good ventilation and light have been provided throughout by means of a number of large doors and clerestory windows. The roof of the building is of flat terracing throughout and it is supported on steel girders. The high school has in recent years so rapidly outgrown its present building that further extensions have been found to be an urgent necessity and are now being carried out. These extensions will consist of a number of class rooms, science laboratory, library, covered gymnasium, store room, servants' quarters, headmaster's room and urinals, and will cost Rs. 41,952. Two plots of garden each measuring 81 ft. by 44 ft. have of late been laid out in front of the building.

The number of boys in the high and middle department is about 425. It is proposed to accommodate these boys in the main building and the extensions to be made thereto. For the present only the high school department with 180 pupils meets in this building, the middle school department has been located in the hostel buildings and for the hostel suitable private houses in the vicinity have been rented. This arrangement will last for a couple of years more, by which time all the extensions are expected to be completed.

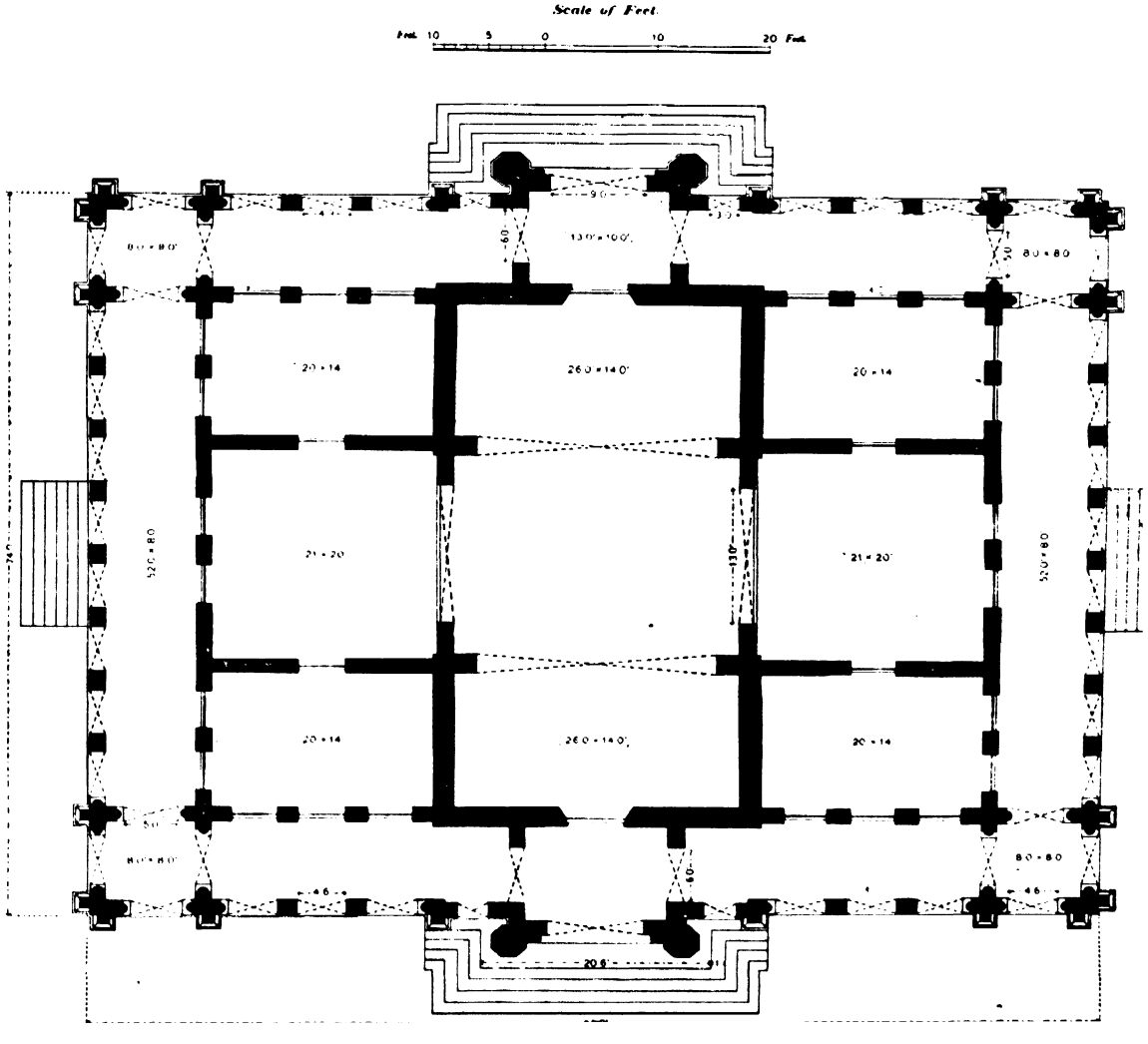
At present the system of seating employed and the numbers accommodated in the class rooms are as follows:—

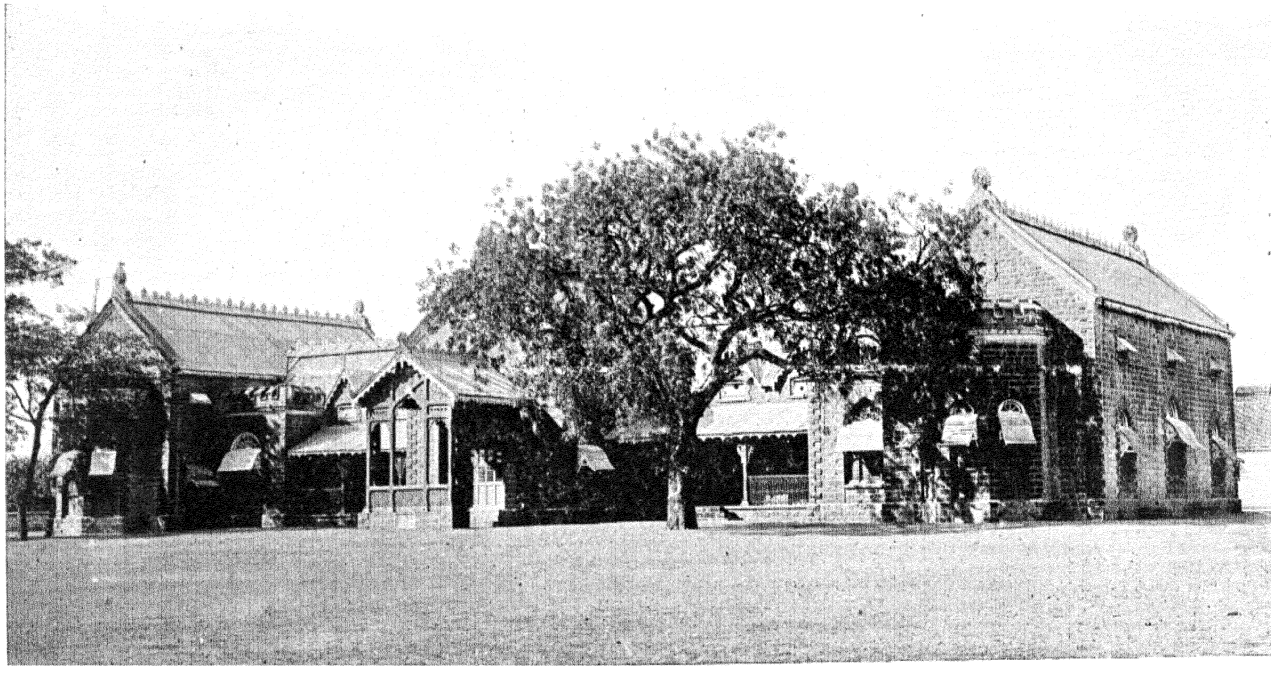
The headmaster occupies the south-eastern room for his office work and teaches the classes therein that are under his direct tuition; the science teacher occupies the south-western room. The fifth class, section A, with 32 boys meets in the eastern wing, section B of the same class with 29 boys meets in the southern portion of the hall. The sixth class, section A, with 23 boys occupies the north-east verandah, while section B of the same class with 26 boys meets in the north-west corner room. The two sections of the seventh class each consisting of 35 boys are accommodated in the middle room on the west, the north-east corner room, the science room, and the headmaster's room at different periods.

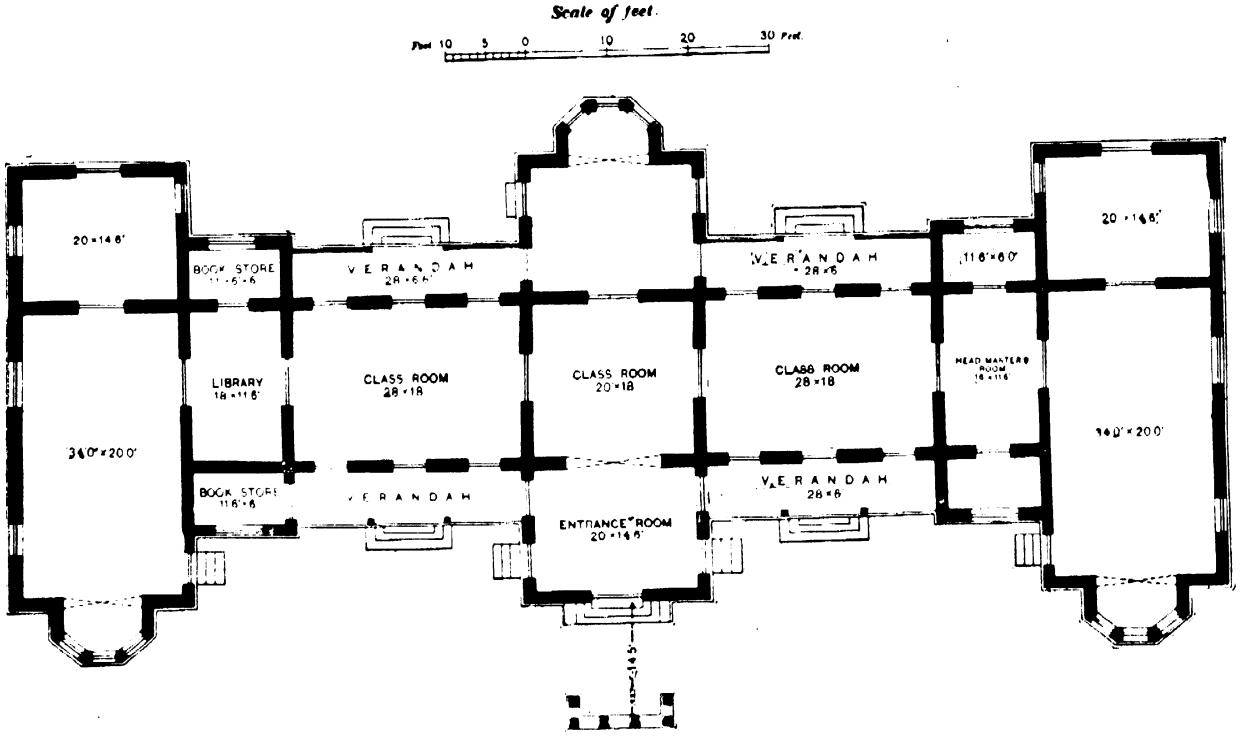
The school has a hostel containing 44 boys of all castes and creeds. There is a resident master who supervises them and who has a separate lodging in front of the hostel.



GOVERNMENT HIGH SCHOOL, HOSHANGABAD.







GOVERNMENT HIGH SCHOOL, AMRAOTI.

Government High School, Amraoti.

Amraoti is one of the principal centres of the cotton trade in Berar. Before the amalgamation of the Berars with the Central Provinces it was also the seat of the local Government, and although its importance from the latter point of view has diminished it is still a thriving commercial place, having a population of about 40,000. It is connected with the Great Indian Peninsula Railway by a short branch line. The climate is dry and healthy; and the weather is very hot in summer and cold at night in winter.

The present high school building was built in 1876 and an extension was effected later on. The total cost of the building as it now stands is in round figures Rs. 31,600. It is situated outside the city on the Amraoti Ellichpur Road, and being within two minutes walk from the Nagpur gate, is within easy reach of boys from almost all parts of the city. The school building is situated in the middle of an extensive compound of 5¾ acres. The open space in front of the building is used as a playground for football, cricket and hockey. In the space behind are pitched parallel bars, a horizontal bar and "malkhamb."

The extensive compound is walled in by a strong masonry wall about 5 ft. high on three sides, the front has a wooden railing 3 ft. high on masonry work of about the same height. The cost of this compound is estimated at Rs. 4,000.

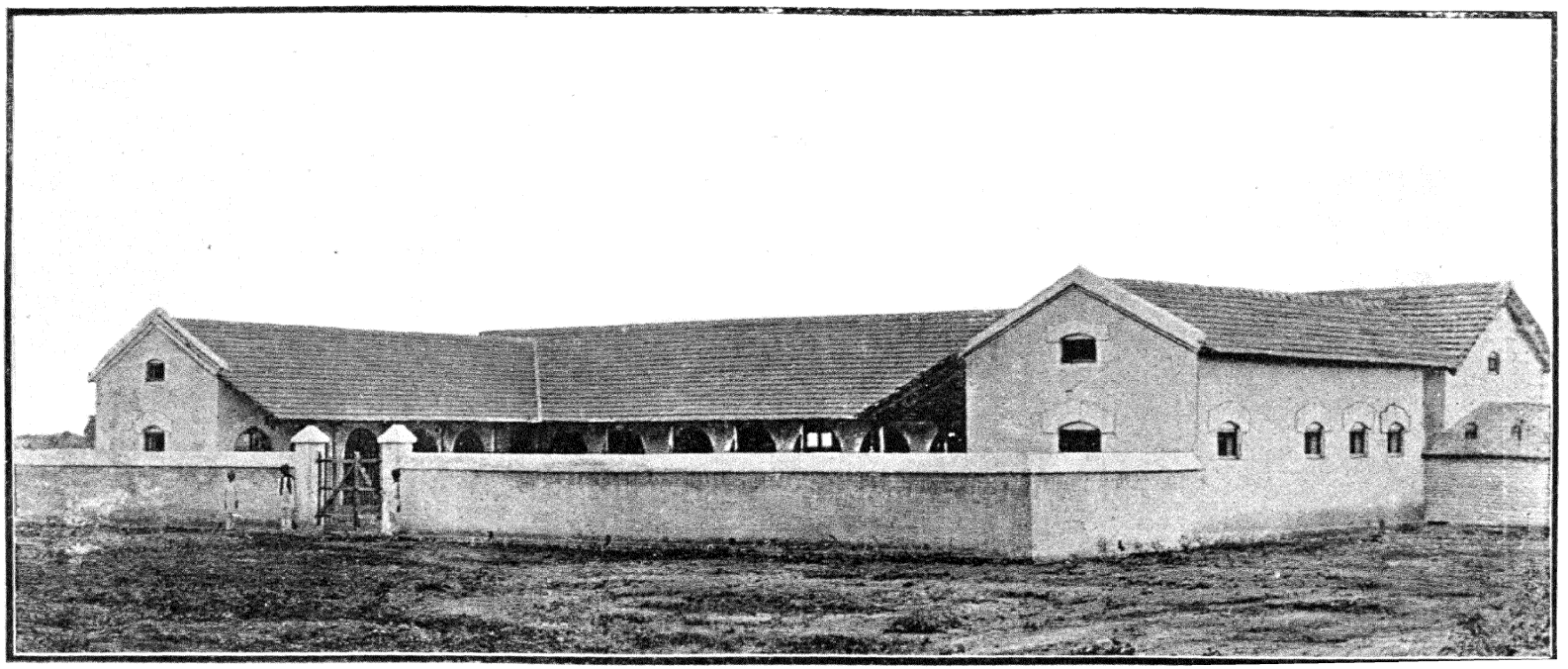
The school building consists of three blocks. It has a gabled roof of corrugated iron sheets. The walls are of dressed stone in lime. The ceiling is of pine plank 24 ft. from the floor in the principal blocks, and about 18 ft. elsewhere. The building covers an area of about 11,400 sq. ft. The blocks extend north and south, are placed at an equal distance of 40 ft. from each other and are each 47 ft. in length and 20 ft. in breadth. The two outer blocks are each connected with the middle one by an ante-room of 18 ft. by 11½ ft. and a class room 28 ft. by 18 ft. These latter rooms have verandahs on the north and the south with strong ornamental iron railings. In front of the middle block there is a porch. The three principal blocks consist each of one large room 34 ft. long by 20 ft. broad, and one small room 14½ ft. by 20 ft. Thus there are in all five small rooms, two medium size class rooms and three spacious halls. All these are well lighted and ventilated with ventilators and windows having sun-shades. Of the five smaller rooms, one is used as headmaster's office, another is used as a room for keeping office records, maps and library almirahs, and a third is used as a teachers' room. There are thus seven rooms available for classes and other uses; and ordinarily for a school like this which teaches from the fourth English class to the Matriculation this accommodation should suffice. But the number of students attending this school has, for some time past, outgrown its accommodation and as there are nine sections in all, this accommodation is not sufficient for all the classes, three of which are located in the old hostel building. Besides accommodation for these classes, rooms are wanted for the library, the laboratory and for drawing. But within a year these wants will all be removed as the local Government has sanctioned a sum of Rs. 38,000, a sum larger than the cost of the original building—for its extension in the same style as the present building. This extension includes a library, a laboratory, five class rooms and two smaller rooms for storing. There will be a verandah all round and Shahabad stone flooring throughout.

Though at present there are no separate rooms for the library and laboratory, the school has about 1,900 books of the approximate value of Rs. 2,200; and as the study of physics and chemistry has only lately been introduced the laboratory is in its infancy and contains chemical and physical apparatus of the approximate value of Rs. 1,400 only.

Boys are seated on combination benches or on common benches with desks to do their writing work. When the number of students in the class cannot be accommodated on benches arranged along three sides of the class room, seats are arranged in two or sometimes three rows one behind the other in front of the teacher with a row on each side. From 40 to 50 boys can be accommodated in each of the three large rooms; about 30 boys can be accommodated in each

of the two medium size class rooms, and about 25 boys in each of the small class rooms. Thus there is accommodation for 225 to 250 boys in the present building; but with the five new rooms of the extension which will accommodate about 30 boys each, the accommodation will be ample.

There are within the school compound a hostel for students and quarters for a resident master. As the accommodation in the hostel was insufficient an additional hostel has been built at a cost of Rs. 26,507. This is a suitable airy building with stone flooring for the most part and covering an area of about 10,500 sq. ft. There are 12 dormitories accommodating 60 students and seven other rooms, including store rooms, kitchen and dining and bath rooms. Quarters are also being provided for a sweeper and other servants of the hostel.



ANGLO-VERNACULAR MIDDLE SCHOOL, AKOLA.

Anglo-Vernacular School, Akola.

The institution has been located in a building specially built for it on the west of the Basim Road at a cost of a little over Rs. 11,000. The school building was opened on the 27th January 1908.

The building proper covers an area of 10,200 sq. ft. in a field over half a mile away from the town. It is in the E form with its face to the east, the front being enclosed by a compound wall with an iron gate at the centre (8 ft. wide). All the walls are of *pucka* bricks and mortar. The rooms and the verandah (8 ft. broad) have a floor paved with square-shaped Neemuch stones.

The body of the building consists of a main hall (50 ft. by 20 ft.) with three rooms on either side, and there are two in each of the wings. In front of the building runs a verandah 8 ft. wide, with wooden posts supporting the projecting Mangalore-tiled triangular roof of the building. A narrow passage (4 ft. wide) between the main building and the northern arm leads to the latrines and urinals (of corrugated iron-sheets) provided for the institution and attached to the building by an iron-roofed passage.

An open quadrangle (in front of the building) enclosed by the compound wall, is for the present utilised for exercises in gymnasium and drill, there being no other space available. The rough open field of about 2 acres, in the rear, serves as a playground. The levelling and fencing of this is much needed.

The main hall accommodates two classes of 52 boys in all, with no partition. Of the rooms on the northern side one (16 ft by 20 ft.) adjoining the hall, has a class of 22 boys; the other is a water room (16 ft. by 8 ft.), and the third (16 ft. by 12 ft.) to the west of this, opening independently to the north, is used for stores.

Of those on the southern side, one (16 ft. by 20 ft.) next to the hall accommodates a class of 22 boys and next to this are the office (16 ft. by 12 ft.) and library (16 ft. by 16 ft.) rooms, having barred windows.

The rooms at the end of the wings (20 ft. by 16 ft. each) have in them classes of 24 boys each and the others to the west of these (14 ft. by 16 ft. each) furnish accommodation for 40 boys in two equally divided separate classes.

All the rooms admit sufficient light and air through doors and wire-gauzed arches in front and windows at the back.

Anglo-Urdu School, Akola.

The building stands on the western side of the Moorna river bridge. It was erected in 1873. The total approximate cost of the building is about Rs. 20,000. It is situated in the centre of the town, and hence it is within the easy reach of the students of both town and Tajnapeth.

The whole school building covers an area of about 3,880 sq. ft. and consists of one middle hall 50 ft. by 20 ft. by 22 ft. stretching from east to west; and four side rooms, two to the south and two to the north of the middle hall. Each side room measures 20 ft. by 12 ft. by 17½ ft. The building has four verandahs. The two verandahs towards the east are enclosed half by walls and half by railings, and hence they are converted into regular rooms. The west verandahs are unenclosed. Thus there are seven rooms in the whole building. The arrangements for ventilation and light are satisfactory. The glass panes of the outer doors and ventilators are protected by means of iron wire gauze. Two years ago the country tiles of the roof of the building were replaced by Mangalore tiles.

The seven rooms of the building are at present occupied thus :—

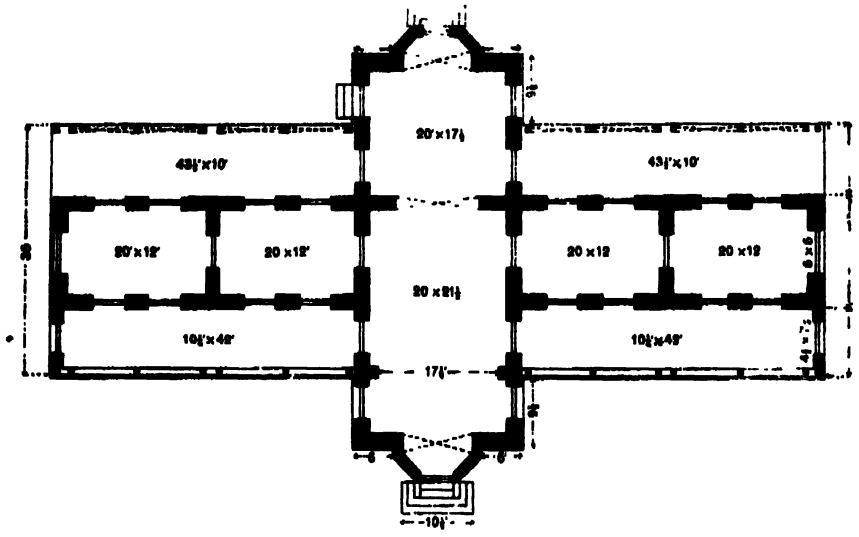
Standard I contains 42 boys. It is not divided into two sections yet for want of an additional teacher. It is taught in the middle hall. In one of the side rooms to the south of the middle hall, Standard II of 19 boys is accommodated and in the other the drawing master teaches, while in one of the side rooms to the north Standard III of 22 boys is taught and the other is used as an office room.

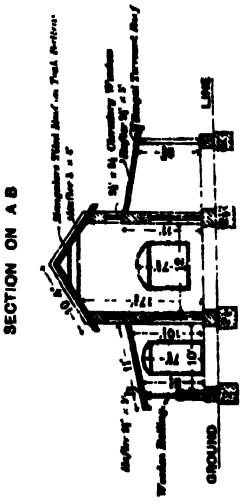
Of the two enclosed verandahs to the east one is reserved for a water and lumber room, one verandah is left vacant to accommodate Standard IV which is shortly going to be introduced in this school.

The area of the compound which is unfenced is about 25,930 sq. ft. The eastern part of the compound is used for Deshi Kasrat. Two bars and a malkhamb are also pitched there. In this portion of the compound there are 20 neem trees. The western portion of the compound is reserved for native games.

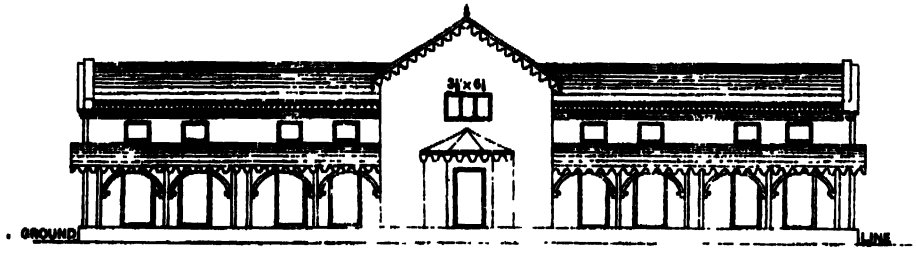
There are two latrines in the compound, one with five seats made of corrugated iron sheets for the use of the boys and the other built in brick and mortar for the use of the teachers. There are two small rooms in the compound intended for peons' quarters, but for the present they are occupied by the poor mofussil students of this school.

ANGLO-URDU SCHOOL, AKOLA.

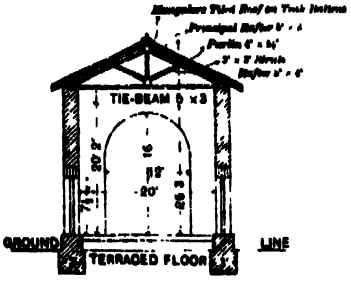


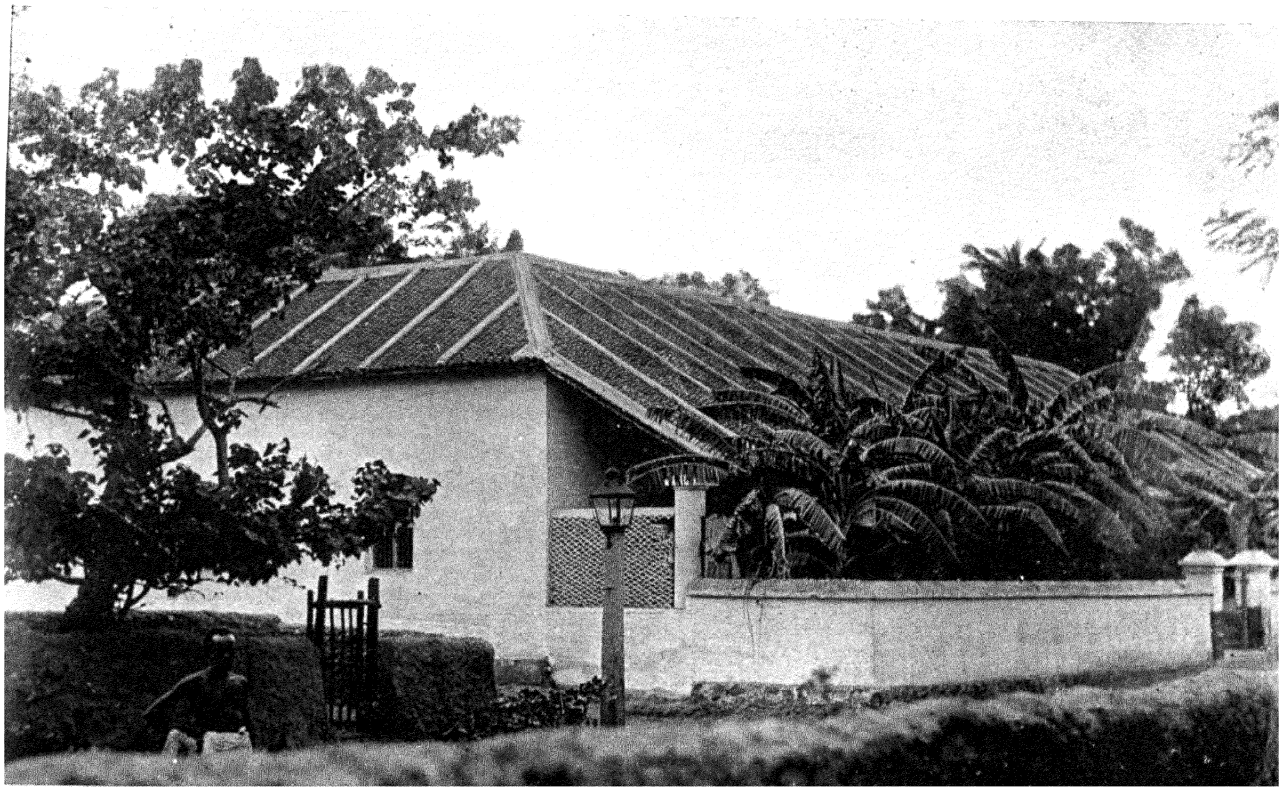


FRONT ELEVATION

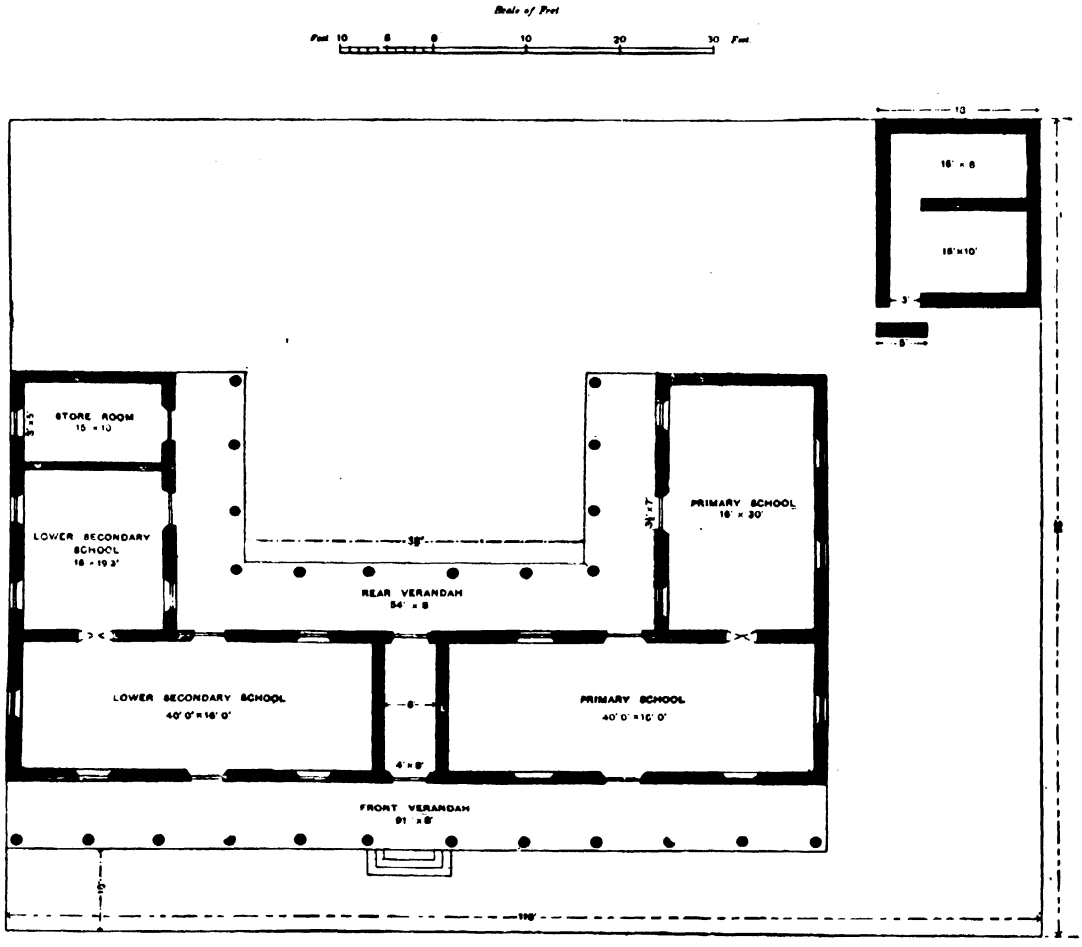


SECTION C D





HINDU LOWER SECONDARY SCHOOL, SRIVAIKUNTAM, MADRAS.



Hindu Lower Secondary School, Srivaikuntam.

Srivaikuntam is a taluq station 16 miles to the east of Tinnevelly, the capital of the district of the same name. It is situated on the left bank of the Thamara porni, a perennial river. There are many big neighbouring villages with only elementary schools. It is, therefore, a good centre for a complete secondary school.

Though hot in summer, Srivaikuntam has a bracing climate when the monsoon commences.

The school has a new building of its own completed only in 1905 at a cost of Rs. 5,260, of which Rs. 1,000 has been paid by Government in the shape of building grant.

The school is built in the centre of the town and opposite to the Coronation Reading Room within a compound measuring 113¾ ft. long and 103 ft. broad east to west, protected all round by walls 5½ ft The main building faces west and consists of a long hall 94 ft. by 16 ft. connected at its ends with two wing rooms at right angles to it, each measuring 30 ft. by 16 ft. In the front it has a verandah 8 ft. broad to the whole length of the main hall. There is also a verandah of the same breadth at the back. The inside of the school house and the back verandah are paved with square bricks and the flooring of the front verandah is plastered. The roofing of the whole building is covered with tiles and is 18½ ft. high at the ridge.

The building has sufficient light and ventilation as there are 19 windows 4½ by 2½ ft., seven doorways 6½ ft. by 3 ft., besides the two main doorways 7 ft. by 3 ft. The flooring is 4 ft. above the road level.

In the compound is a small godown and also a well.

A narrow strip of land 4 ft. broad between the compound wall and the main building is used for garden purposes.

The remaining space which covers an area of 3,595 sq. ft. is used as gymnasium, drill and playground.

To the north of the school house there is a narrow lane 22 ft. broad and to the north of the lane there is a vacant site 163 ft. by 22 ft. Half of this site has been already purchased and arrangements are being made to purchase the other half also.

Kastura Kumari Middle English School, Rohini.

The school was founded by Thakurani Kastura Kumari Ghatwalin of Rohini. The foundation stone was laid by Mr. W. H. Vincent, I.C.S., the Deputy Commissioner, in the year 1899. The school compound comprises an area of 2,779 sq. yds. and the main building comprises an area of 304 sq. yds.

The school building is 80 ft. in length and 34½ ft. in breadth. It consists of two large rooms, each measuring 23 ft. by 14 ft. by 16 ft., four corner rooms, each measuring 14 ft. by 12 ft., and two verandahs, one on the east and the other on the west, each measuring 48½ ft. by 8 ft. The school library is in the south-east corner room; at the north-west corner of the school building are the quarters of the headmaster which occupy a space of about 121 sq. yds. In the front of the school, *i.e.*, on the east side, there is a spacious open ground which is used as a playground.

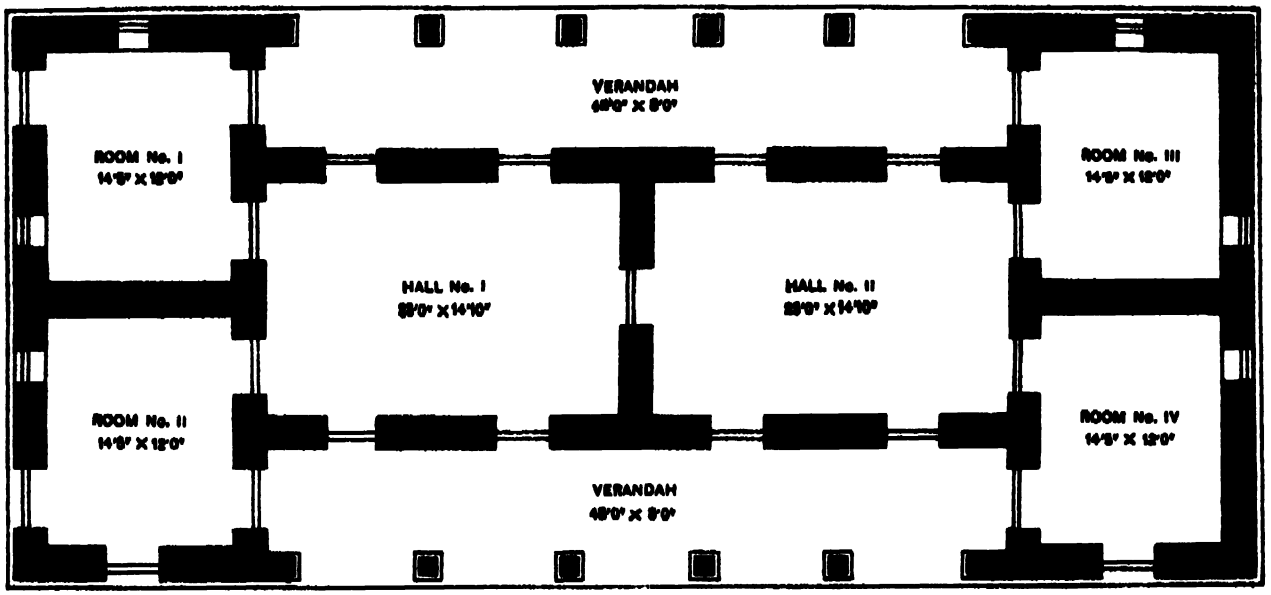
The building is a tiled one with *pucka* walls. It has large doors and windows and consequently the rooms are well ventilated and airy.

KASTURA KUMARI MIDDLE ENGLISH SCHOOL, RONINI, BENGAL.

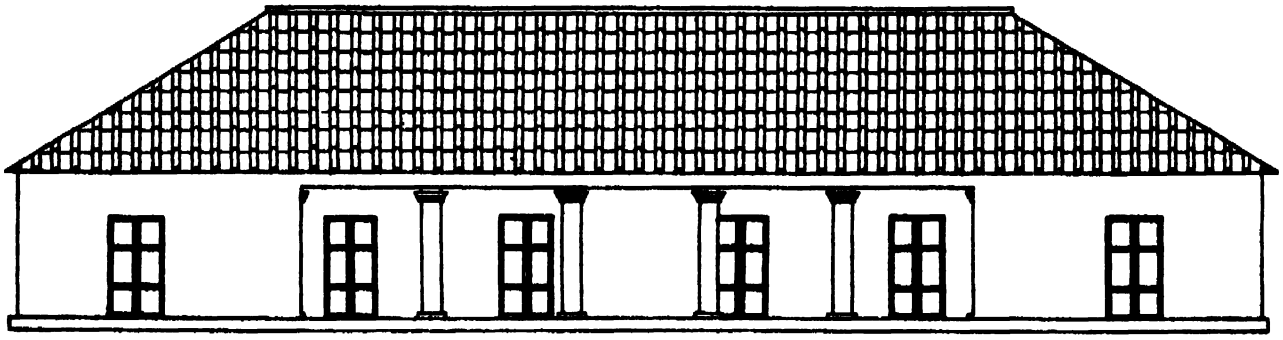
Scale of Feet.

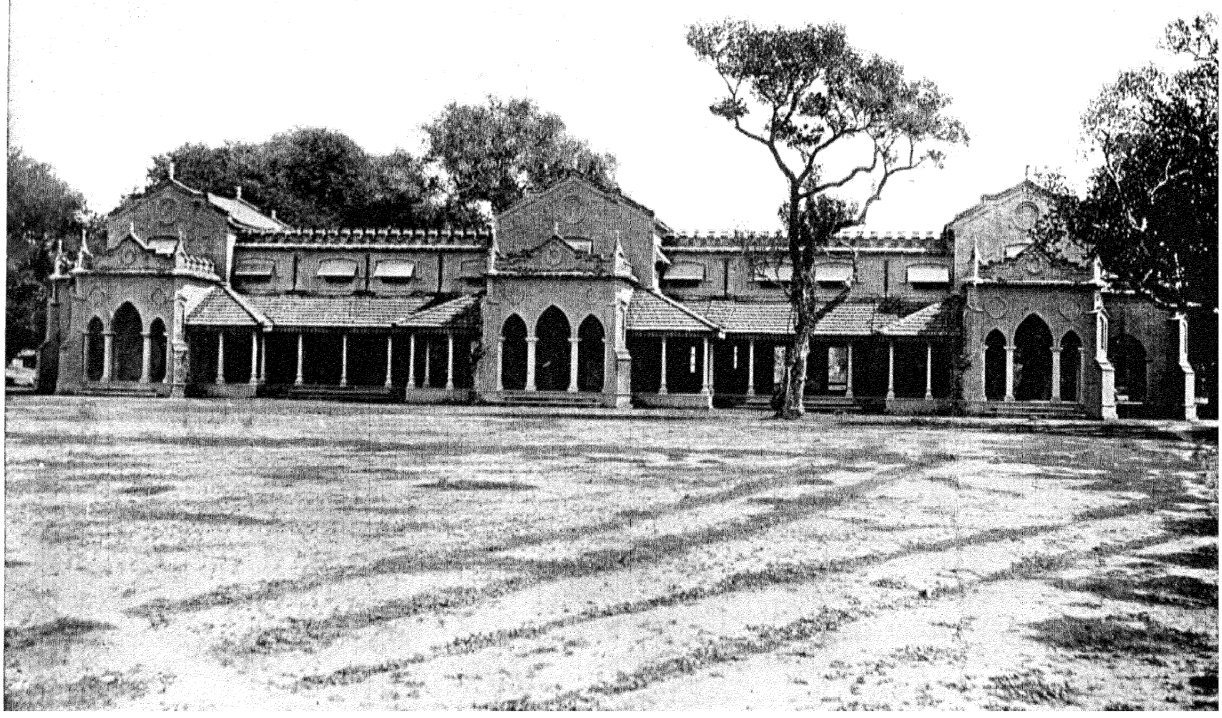
Feet. 10 5 0 10 *Feet.*

PLAN.

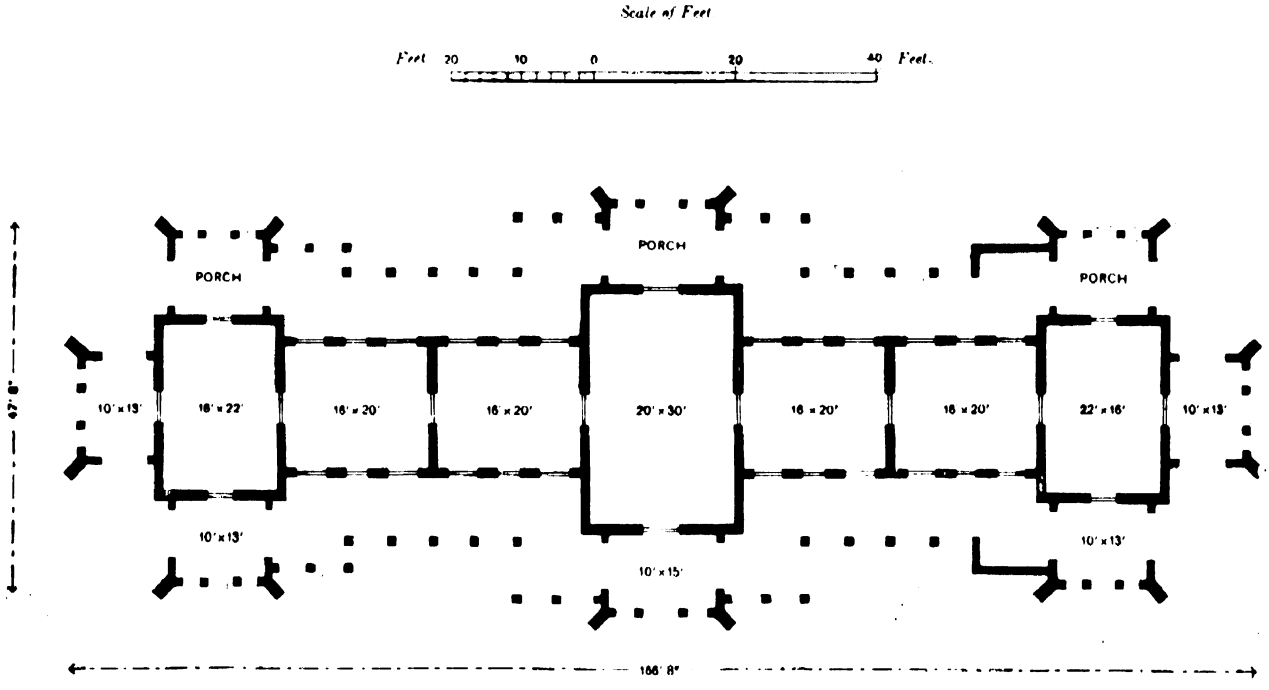


FRONT ELEVATION.





MIDDLE SCHOOL, HAIDARGANJ, FYZABAD.



Haidarganj Town School.

The building measures 166 ft. by 47 ft. and covers an area of 7,100 sq. ft. It accommodates about 160 scholars. The cost per sq. ft. is Rs. 2-3-9. The construction is mostly of brickwork, the edging of the plinth being of stone and the floor of 3-4 Rewari slate. The roof is made of rolled steel joists carrying jack arches 4½ inches thick overlaid with 4½ inches concrete terracing. The end and central rooms are tiled on steel terraces and battens. The doors are of teak.

Vernacular Middle School at Gojra, Lyallpur District.

This institution is located in a building specially built for it at a cost of Rs. 12,000 out o the funds of the notified area, Gojra. The building was completed and the school transferred to it in the year 1907.

The building consists of a hall and six class rooms. The hall is 40 ft. by 24 ft. by 24 ft and is used for the purposes of examinations, for meetings, as a class room, and as a laboratory.

The class rooms, each 25 ft. by 16 ft. by 18 ft., situated on the north, east and west of the hall accommodate the middle and primary classes. There are also two godowns 10 ft. by 8 ft. by 12 ft. A verandah 8 ft. wide and 12 ft. high runs all round the building. There is a corridor 8 ft. wide between the hall and the northern wing for the free circulation of air. Light and ventilation have been provided for by means of large doors, windows and ventilators.

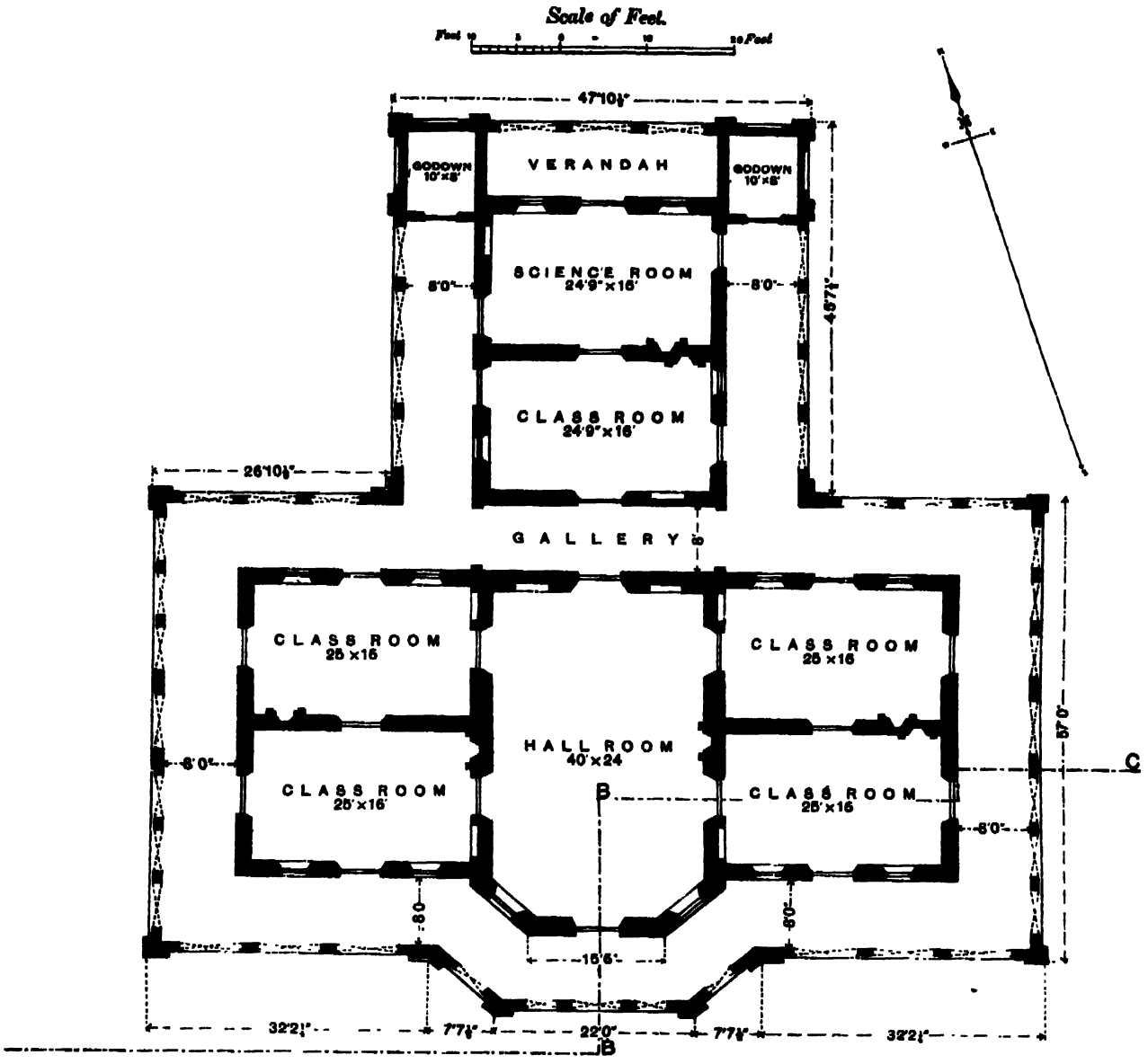
The interior walls of the building are *kutcha* with the exception of the arches of the openings which are *kutcha-pucka*. The outer wall of the verandah and the facing of all the other exposed walls are *kutcha-pucka* and lime-pointed. The roof which consists of one layer of two inches flat tiles in lime mortar overlaid with 6 inches mud is supported on rolled steel beams and deodar battens.

The building faces south and is approached from the south side.

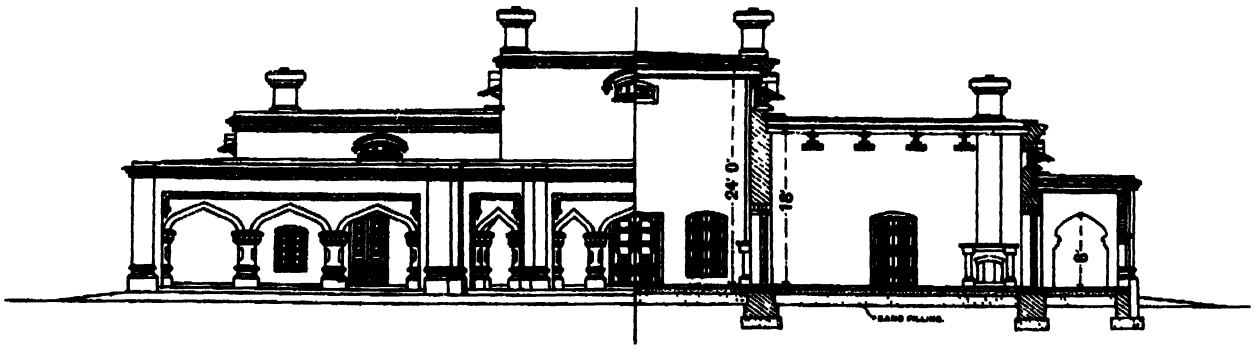
The spacious compound comprises an area of about 7 acres, situated in the vicinity of the town adjacent to the dispensary, but at some distance from the congested part. It is fenced in for the most part by shisham and other trees and public road runs all round. A plot of land 140 ft. by 96 ft. to the right of the building is used as a gymnasium.

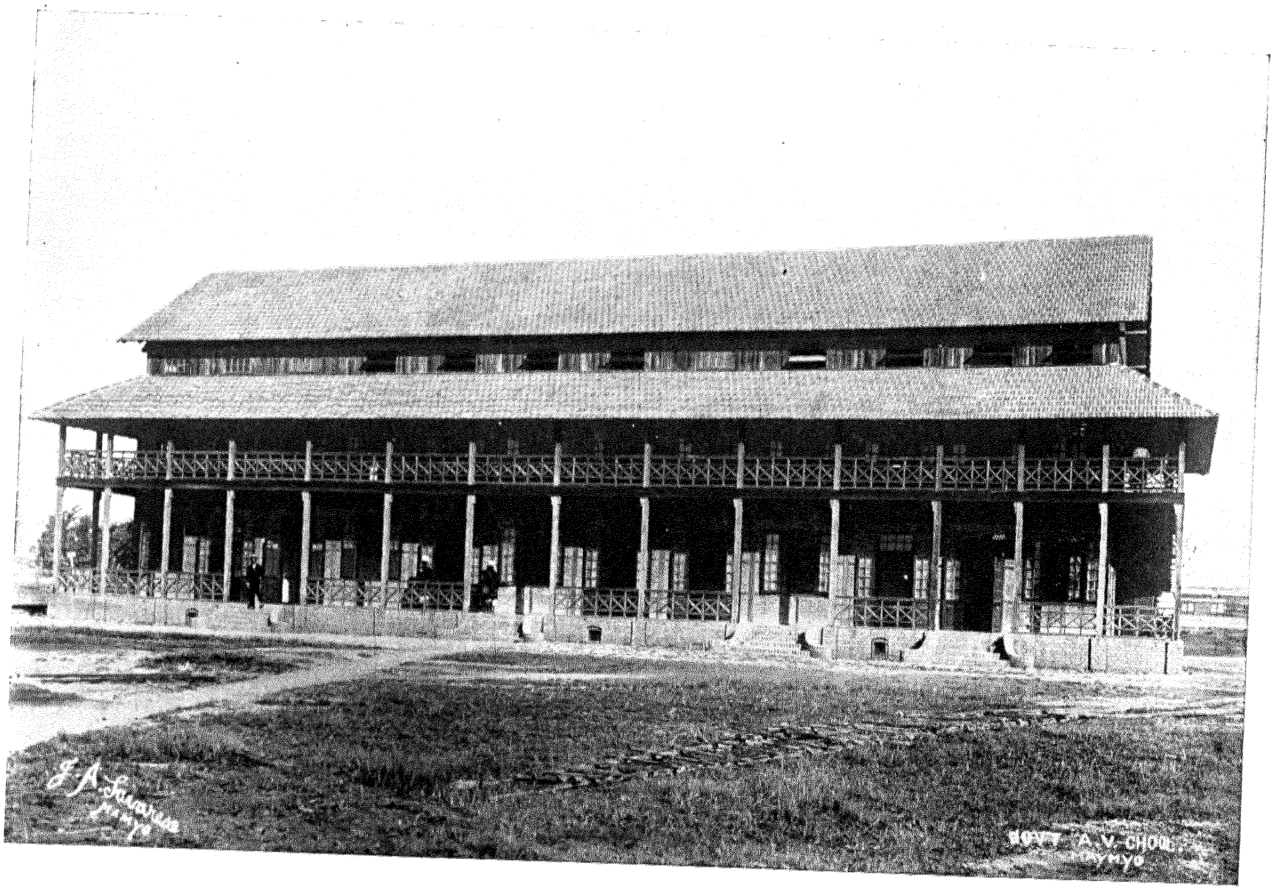
There is also a small tank 57 ft. square to the left of the building used for bathing purposes by the staff and the pupils. On the north side and behind the building, a field 390 ft. by 240 ft. is used as playground. Two rectangular pieces of land lying east and west and another plot further north are at present under cultivation, but the last plot is reserved for the erection of a boarding house later on.

MIDDLE SCHOOL, GOJRA, PUNJAB.



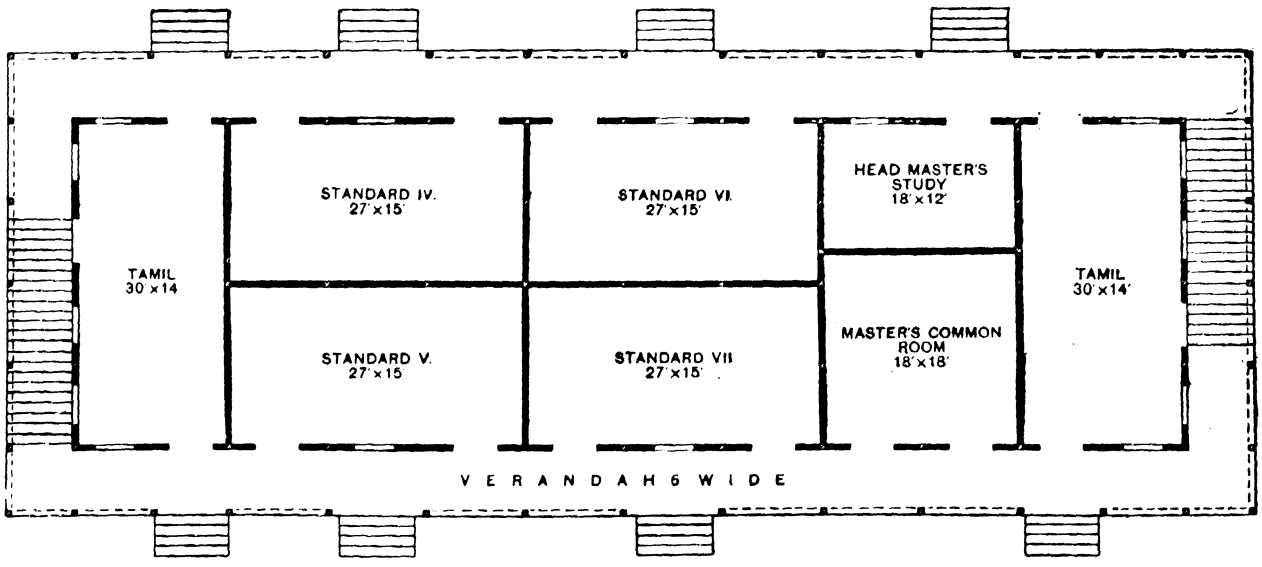
SECTION AND ELEVATION ON A B C.





Scale of Feet.

Feet. 10 5 0 10 20 Feet.



GROUND FLOOR.

GOVERNMENT ANGLO-VERNACULAR MIDDLE SCHOOL, MAYMYO.

Government Anglo-Vernacular Middle School, Maymyo.

The gabled and lofty two storey building of this school is on a piece of ground fairly well drained about 6 acres in area and within a radius of less than a mile from the residences of the native community. The cost to Government of this building and its outhouses was Rs. 23,402. The main building consists of a wooden frame with teak walls and partitions on the top floor and brick-nogging on the ground floor. It has been built on the new type plan of a high school in order to accommodate two extra classes for instruction in Urdu and Tamil. There are two Mangalore tiled roofs to the building. The second one, meant to protect the verandah upstairs, runs at the same angle as the main roof and is 4 feet below it. To minimize the sound from the top floor, the lower floor has an asbestos ceiling. The measurement of the building is 114 ft. by 42 ft. Both floors have a 6 ft. verandah all round, the lower verandah only being cemented.

Ground floor.—At each end a room 30 ft. by 14 ft. accommodates the Urdu and Tamil classes. Two rooms 18 ft. by 18 ft. and 18 ft. by 12 ft. are respectively for the teachers' common room and the headmaster's office. Standards VII, VI, V and IV use the four remaining rooms, each measuring 27 ft. by 15 ft.

Upper floor.—Two stairs on the verandah, one at each end of the building, give access to the examination hall 60 ft. by 30 ft. and the class room of Standard II 30 ft. by 14 ft. Standards I and III occupy two other rooms, each measuring 27 ft. by 15 ft. A sufficient number of large doors, windows and ventilators help amply to light and ventilate the building.

The outhouses consist of a building 20 ft. by 20 ft., being the quarters for two servants, and four latrines. They are well separated from the main building.

The American Baptist Mission Anglo-Vernacular Middle Karen School, Tharrawaddy.

This school is located in a compound of 11 acres situated in the eastern part of the town. The school building was completed in 1905 and cost about Rs. 21,650. About a third of the cost was defrayed by contributions for the purpose given by the Christian Karens of the district. The rest was provided by a grant from Government (of not quite half) and the balance appropriated by the American mission.

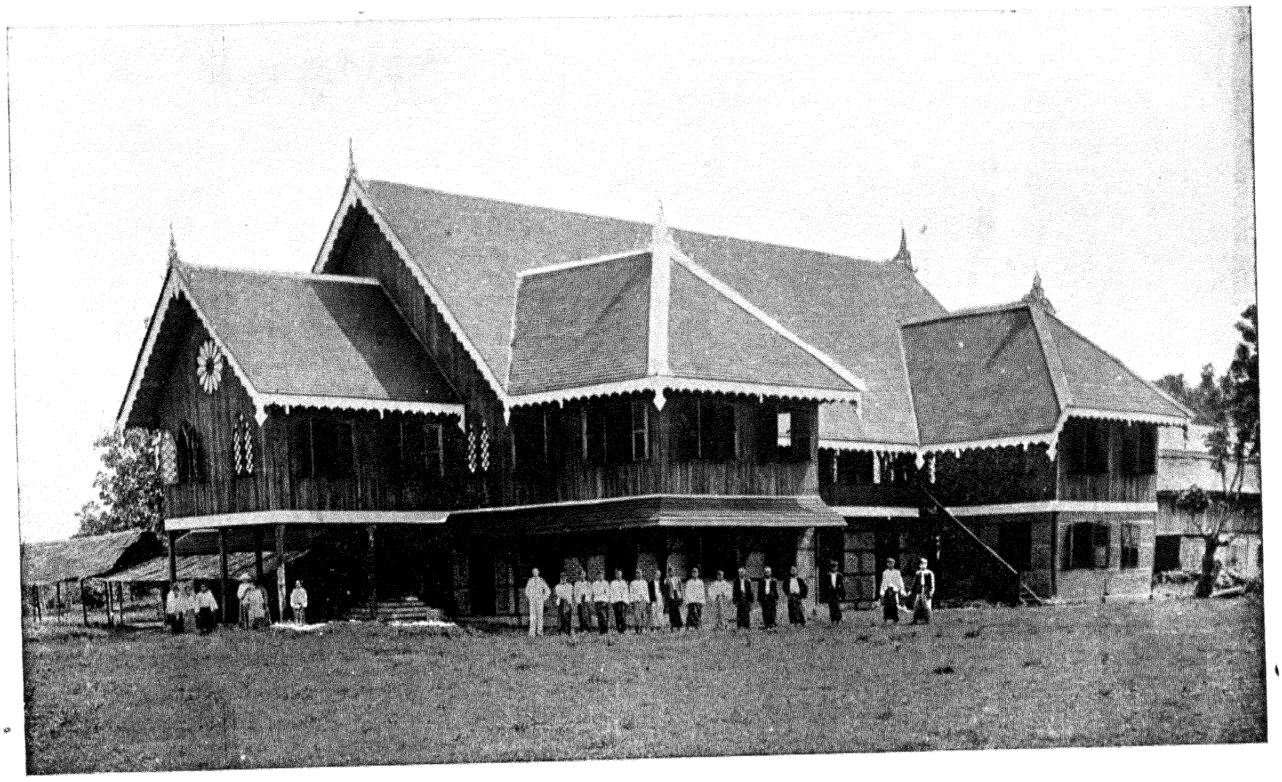
The building is in the form of a letter H, or perhaps more properly, with its apse and portico, the shape of a printer's double dagger (‡). The main portion of the building upstairs contains the assembly room which is also used as a chapel. This room from the back of the apse to the corridor is 80 ft. by 40 ft. This apse forms the rear half of an octagonal platform thirty feet in diameter, which makes sufficient space for concerts and rhetorical exercises. The seats in this room are fitted with swing desks, and it is used for examinations and night study, as well as for the daily assembling of the school.

From the four corners of this room extend four wings, each 20 ft. by 20 ft., which form the legs of the "H" and are used for class rooms. These are connected along the sides of the hall by verandahs. A corridor also runs across the back of the hall connecting with the portico and stairways. This portico, also 20 ft. by 20 ft., is designed as a library, but it is now pressed into service as a class room. The entrance to the building (upstairs) is through one large door under the portico on a landing 4 ft. above the floor. From this landing the stairs divide and go up on either side. There are also side stairways leading up to the side verandahs.

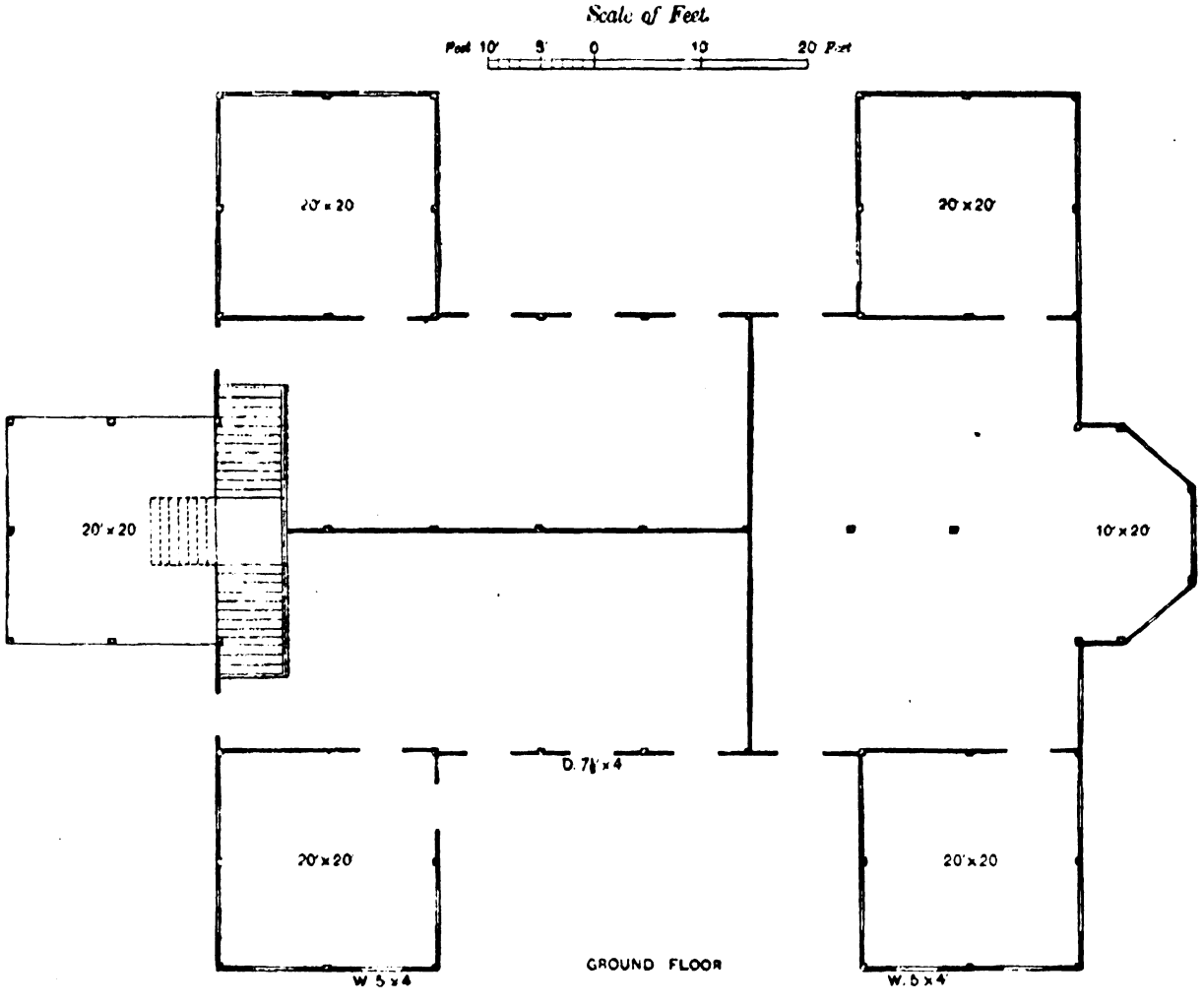
Downstairs the main part is divided into three class rooms, two of which are 20 ft. by 30 ft. and the other 30 ft. by 40 ft. There are also the same wing rooms as upstairs. So altogether, besides the assembly room, there are 12 class rooms which at present are accommodating 419 pupils.

The building is of teak and pyingado, except a cement floor, and walls of brick nogging downstairs. Good ventilation is secured by numerous doors and windows.

Between the building and the road running to the east, is a space sufficient for a football ground for the boys. A small gymnasium has been built here. The dormitories and teachers' quarters are arranged to the rear of the building. These are mostly ordinary frame buildings. A little distance to the west a new dormitory for the girls is being constructed.



AMERICAN BAPTIST MISSION KAREN ANGLO–VERNACULAR MIDDLE BOYS' SCHOOL, THARRAWADDY.

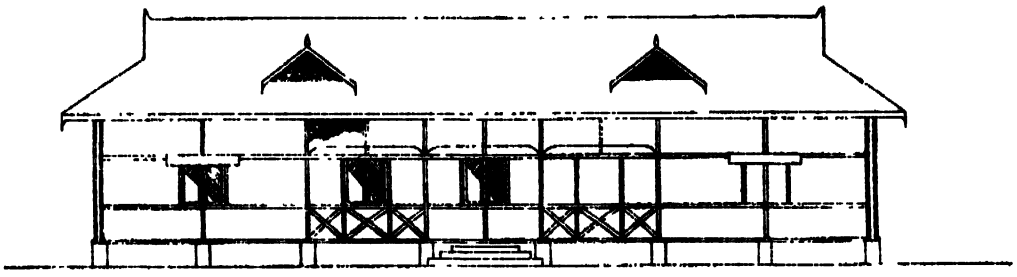


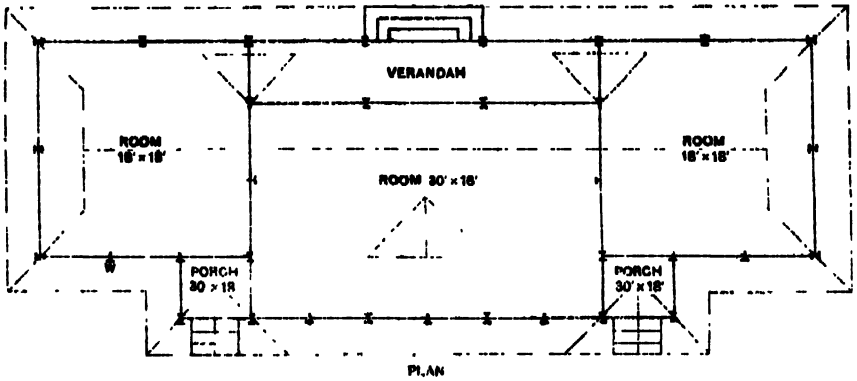
TYPE PLAN OF MIDDLE VERNACULAR SCHOOL
FOR
150 BOYS, EASTERN BENGAL AND ASSAM.

Scale of Feet

Feet 10 5 0 10 20 Feet.

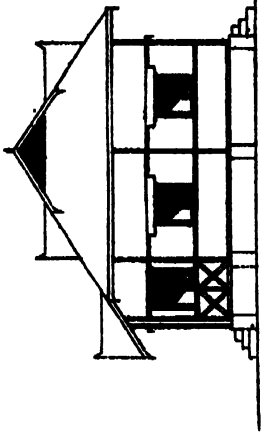
BACK ELEVATION.



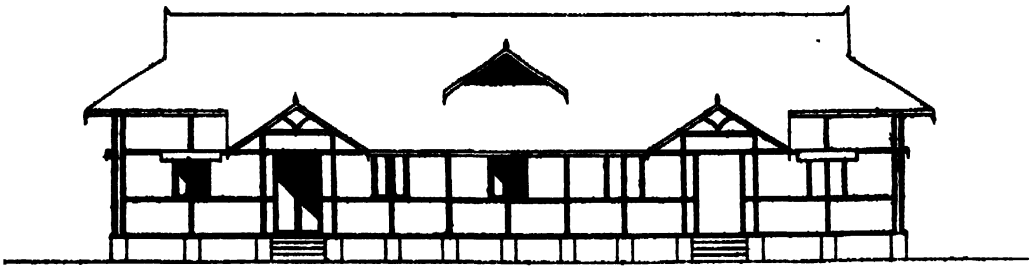


PLAN

SIDE ELEVATION.



FRONT ELEVATION.



Type-plan of Middle Vernacular School for 150 boys, Eastern Bengal and Assam.

This type was intended for use in Assam; and the materials were chosen with special reference to those available in that part of the province. It has been used, though not to a large degree, in Eastern Bengal, with slight variations of material and at an enhanced rate of construction.

The plan is very simple, a large central room for the lower classes and two side rooms for the higher classes. The superficial space allowed per pupil is 8 sq. ft.

The estimate allows for a masonry plinth, steel joists and posts, wall panels of whole bamboo and thatched roof. The cost of construction is reckoned at Re. 1-13-6 per square foot. The total cost of such a building is Rs. 2,583. In practice, these materials are considerably varied. Sometimes (though not ordinarily) the frame-work is made of wood. Sometimes the roof is of wood or ruberoid. The walls are often filled in with *ekra** or bamboo-matting in preference to whole bamboo. Indeed, whole bamboo has been found not altogether suitable, as the bamboos do not fit well together and let in wind and rain.

The buildings are, of course, designed with an eye to the possibility of earthquakes. They are distinctly pleasant in appearance, well ventilated and generally convenient.

* For a description of this material and its use, *vide* "The Silchar Training School."

Government First Grade Middle School, Narsinghpur.

The present school building was originally intended for a military hospital, but was made over to the educational department on the abolition of the cantonment in 1863.

The compound contains a small garden in front and a small gymnasium and drill ground at the back. But there is also a large field beyond the southern road, the greater part of which has been levelled to serve as a playground.

Opposite to the school towards the north stands a well-designed hostel in charge of a resident master affording accommodation for about 30 scholars from the interior of the district.

The main building consists of a central room 18 ft. square and 20 ft. high, lengthened into two smaller ones 10 ft. each side, the roof being carried over and supported by two big arches, each 14 ft. by 18 ft. and forming an elongated hall 18 ft. by 42 ft. The whole building measures 185 ft. long.

The northern wing contains two rooms each 39 ft. by 18 ft. with an equal height of 19 ft. at the walls and 24 ft. at the middle ridge, running all along from the extremity of one wing to that of the other. But the southern wing consists of one large room 60 ft. by 18 ft., and one smaller 9 ft. by 18 ft. There is an uncovered verandah beyond the northern wing open to view from a glazed folding window 6 ft. by 10 ft.

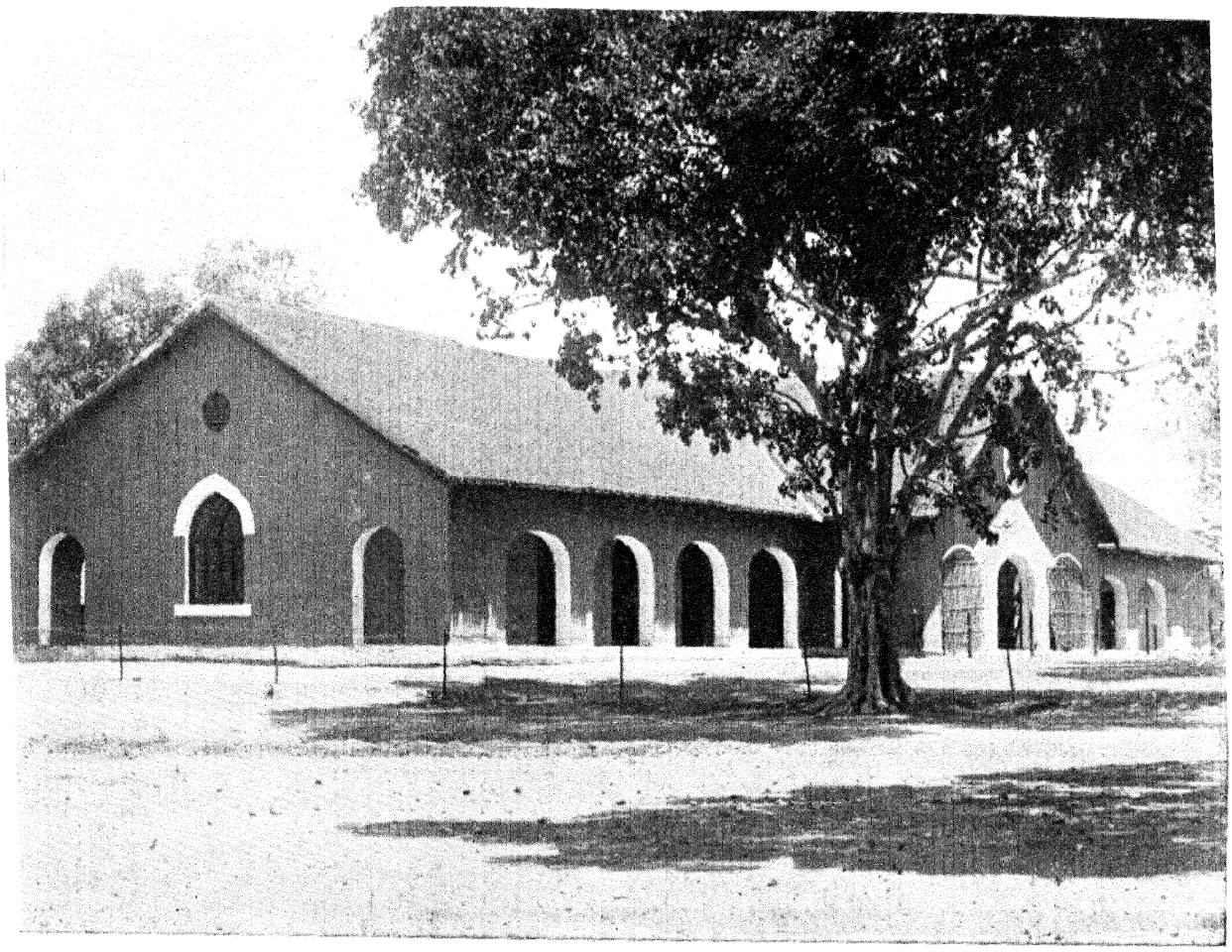
The whole floor of the inside and outside rooms and verandahs has now been paved with undressed stone from Hoshangabad.

The central room might accommodate a class of 40 boys if raised back seats were provided, but as it is, it provides seats for only 25 pupils The next room of the north wing can similarly accommodate two classes of 35 or 25 each, and the one adjoining can seat 45 at desks for writing work or drawing.

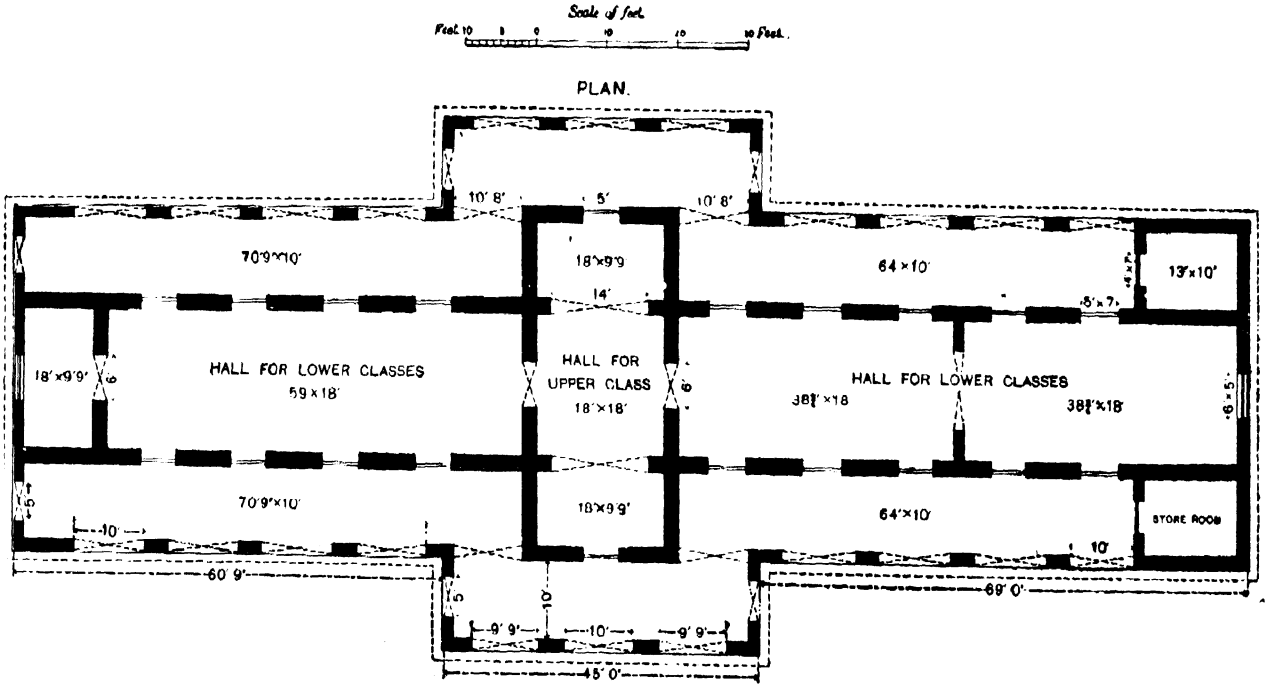
The room of the south wing next to the central hall might similarly seat 3 classes of 30 or 20 each and the smallest 20 or 15. In all there is room for 200 boys besides the desk arrangement for 45.

The system of seating is as follows :—The seat of the headmaster in the central room faces to the west and the class to the east in a hollow square or oblong, those of the other teachers facing to the east with the classes facing to the west in hollow squares or oblongs, those classes which contain more than 20 to 22 boys have double lines in front.

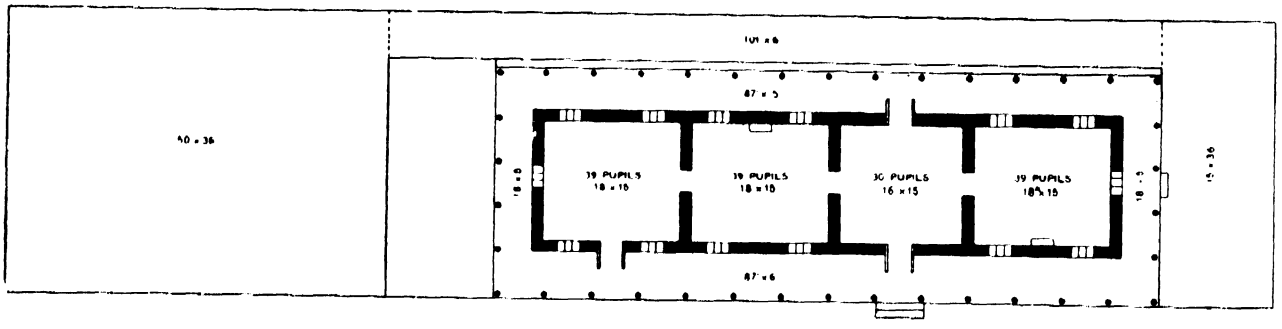
Light is provided through two glazed side windows at the ends of the wings and through doors.



ANGLO-VERNACULAR MIDDLE SCHOOL, NARSINGHPUR.



MUHAMMADAN BOARD SCHOOL, CHAKRAPALLI, MADRAS.



Board Muhammadan School, Chakrapalli.

This is a public institution under the management of the Taluk Board, Kumbakonam, and is located in a building Built by the Board in 1901. The compound is rectangular and comprises an area of about 700 sq. yds. The building faces south and opens into the north main street of a Hindu temple of some renown.

The entire compound is surrounded by walls 5 ft. high on all sides except the south, which being on a main street of the temple cannot be blocked up.

The building is about 75 ft. east to west and 15 ft. north to south with an average height of 12 ft. with a verandah all round, that in front (south) being 6 ft. wide and that on the remaining three sides 5 ft. The whole building is divided into four rooms of almost equal dimension.

The room at the west end is that in which the classes under the headmaster are held (4th and 3rd). The other rooms being occupied by the infant, second and first classes respectively with a view to have the last teacher under the immediate supervision of the headmaster and the last but one under that of the 1st assistant.

The seats are arranged in hollow rectangles in all the classes except in the infant class, where planks are placed in four rows east to west. It is under consideration whether the class room walls should be all blackened inside for engaging all pupils simultaneously in free-arm drawing, etc.

The accommodation provided for each pupil is nowhere less than the prescribed minimum space of 8 sq. ft. or 80 cubic ft. except in the infant class, a portion of which is held in the verandah for want of space.

Rural School, Pedda Tippa Samudram Madanapalli Taluk, Cuddapah District.

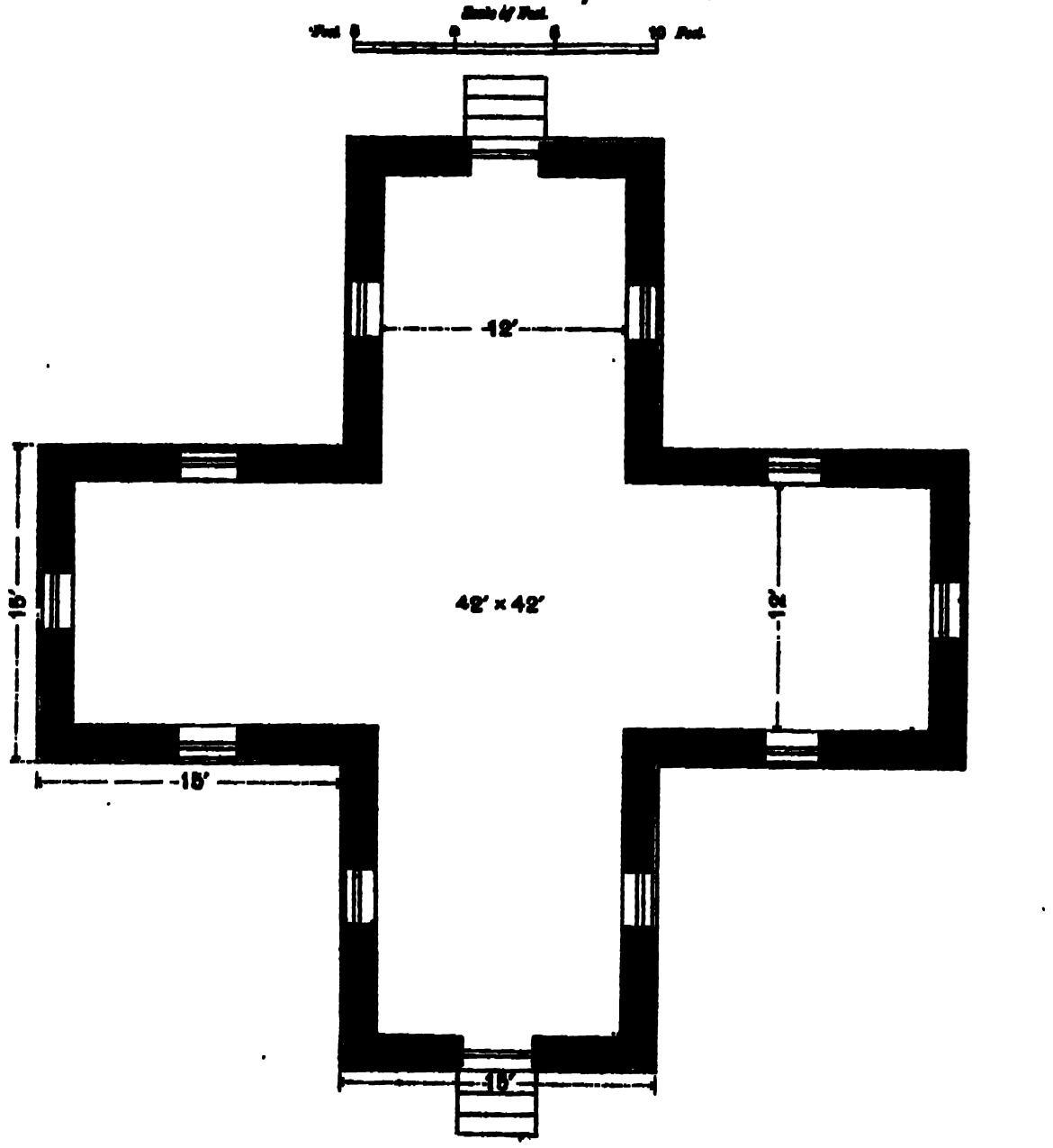
The rural school is held in a building constructed at a cost of Rs. 1,332-8-0 by the Taluk Board, Madanapalli, out of the provincial funds (six lakhs of rupees) distributed and placed at its disposal for the construction of school buildings in rural areas. The work was commenced in the year 1906 and finished in the year 1908. The building was actually made over to the school in January 1908. This building resembles a cross, each portion of the cross measuring 42 ft. long and 12 ft. broad. The middle portion is 12 ft. square and forms a small room. In the central room the headmaster holds his class (Standard IV) with 13 pupils. In the portion on the southern side of the building the infant standard with 35 pupils is held. In the similar portion on the northern side Standard II with 15 pupils is taught. In the eastern portion Standard III with 10 pupils, and on the western side Standard I with 15 children, also work.

In front on the southern side there is a public road. On the northern side a graveyard for Muhammadans lies within 4 ft. from the doorway. It is not now used for want of space. On the western side another public road from the village runs. On the eastern side, within 20 ft., paddy fields extend. It is on this small vacant side belonging to the school that drill is taught, class after class.

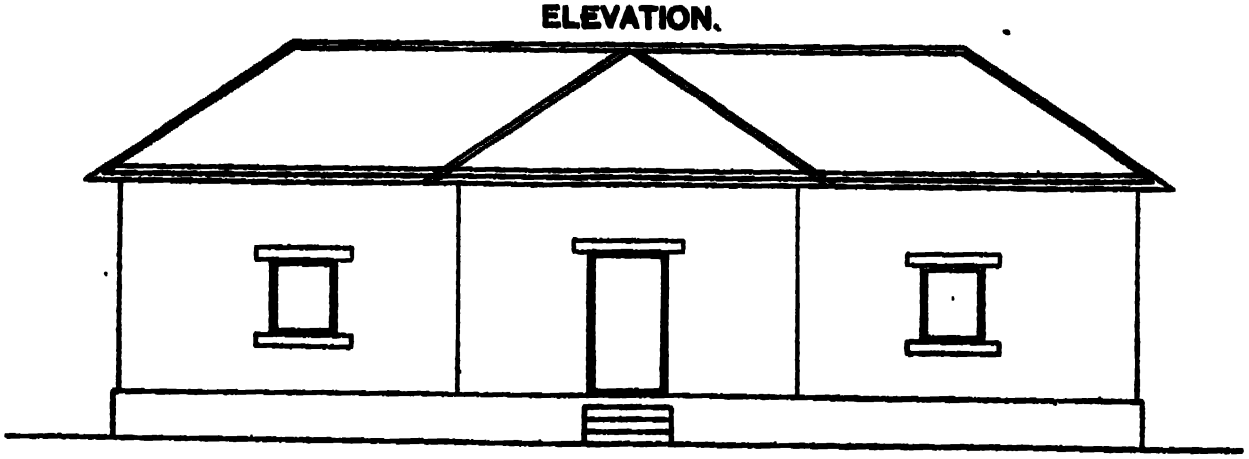
The dimensions of each of the doorways are $5\frac{3}{4}$ ft. high and $2\frac{3}{4}$ ft. wide and those of each of the two windows are 3 ft. high and $2\frac{1}{2}$ ft. wide.

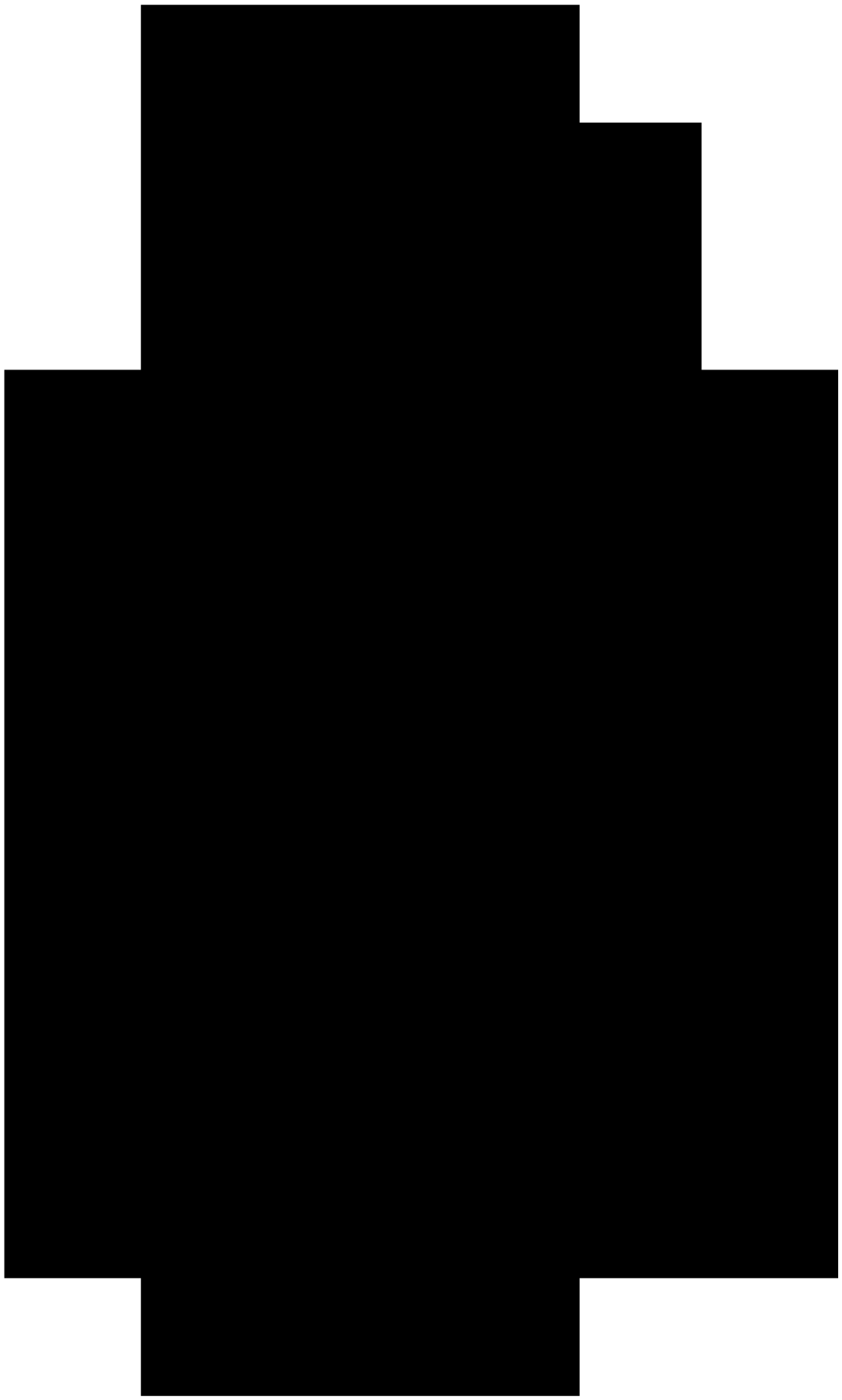
The school has been supplied with the requisite furniture. Children in all the standards, excepting the infants, are seated on benches of ordinary height and size. For the infants' ground benches have been recently supplied.

RURAL SCHOOL AT PEDDA TIPPA SAMUDRAM, MADRAS.



ELEVATION.



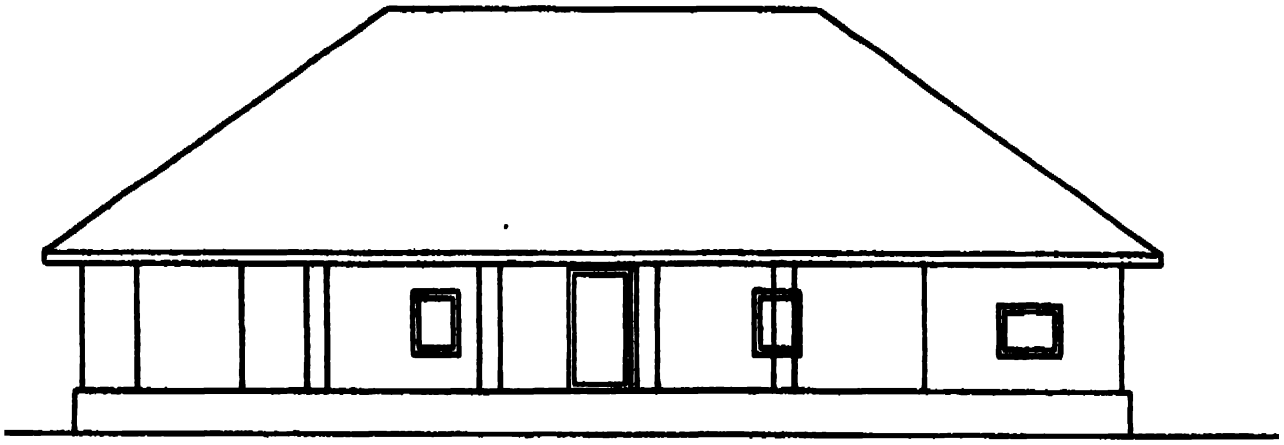


PRIMARY SCHOOL, KOPALLE, MADRAS.

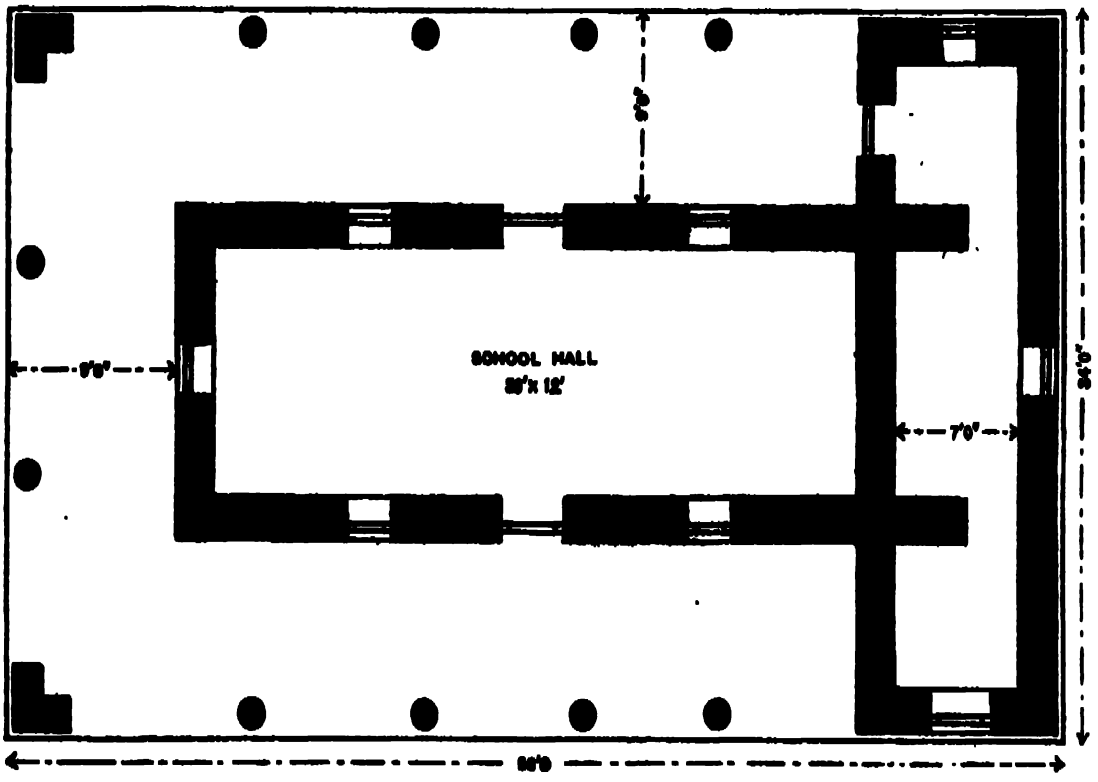
Scale of Feet.

Feet 10 5 0 10 Feet

FRONT ELEVATION.



PLAN.



Board Elementary School, Kopalle.

The school building was constructed in the year 1906 in connection with the rural schools scheme entirely at the expense of the villagers at a cost of Rs. 1,000.

This building, like its sister building at Kesavaram, consists of a room 36 ft. by 12 ft., enclosed by a verandah of 9 ft. all round. The verandah is felt to be a little too wide for the building, but it compensates for any want of space inside as classes can be comfortably seated in it. Part of the western verandah of the building has been converted into a room 7 ft. wide which is used as a store room.

The compound, measuring about one-fourth of an acre, has been walled round, and contains a garden.

Board Elementary School, Kesavaram.

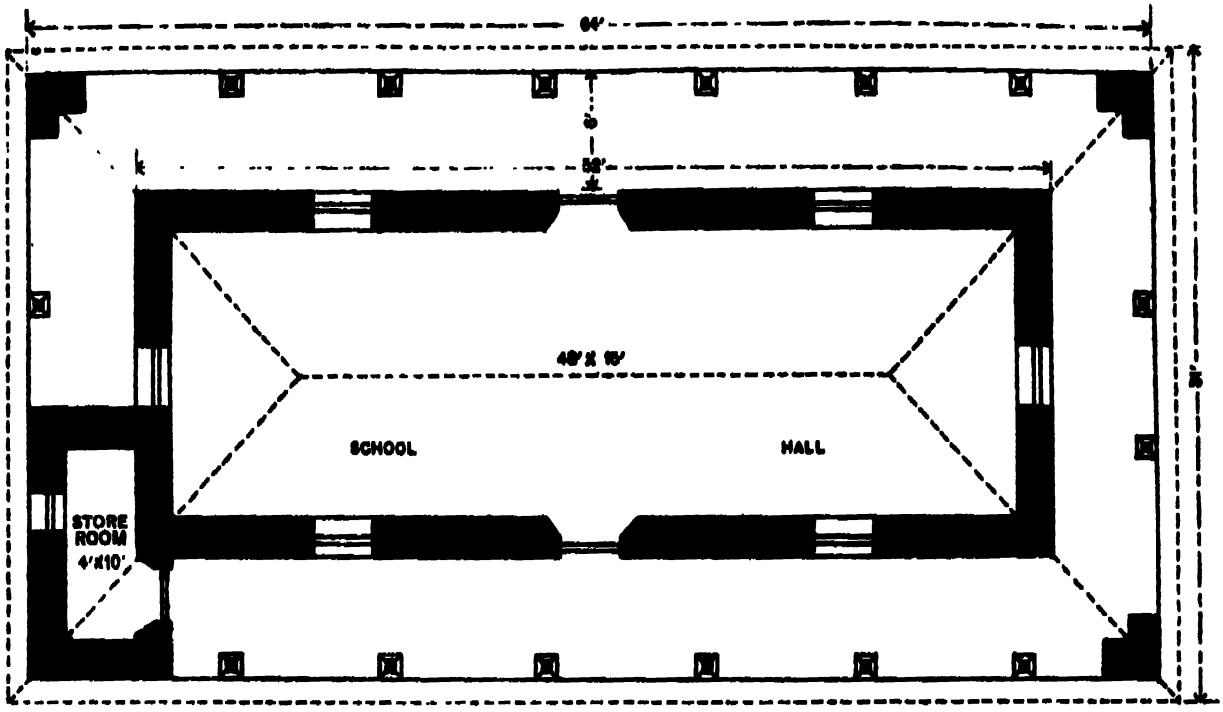
This school building was constructed in the year 1906 at an expense of over Rs. 1,000, nearly two-thirds of which was met by the villagers themselves, the remainder being from Government money. The plan shows a room of 48 ft. by 15 ft., surrounded on three sides by a verandah, 6 ft. wide. On the fourth side there is a small store room. The windows provide all the classes inside with plenty of light and air. As the building runs from east to west, the southern wind, which is the freshest and the coolest in these parts, constantly blows through the doors and windows. All round the building there is a walled compound covering about one-fourth of an acre.

The school contains nearly 80 pupils and has a staff of three teachers. There is no want of space for the classes. The verandahs are used during drill time and in periods of leisure.

The building is conveniently situated in the open space adjacent to the village and near the village tank.

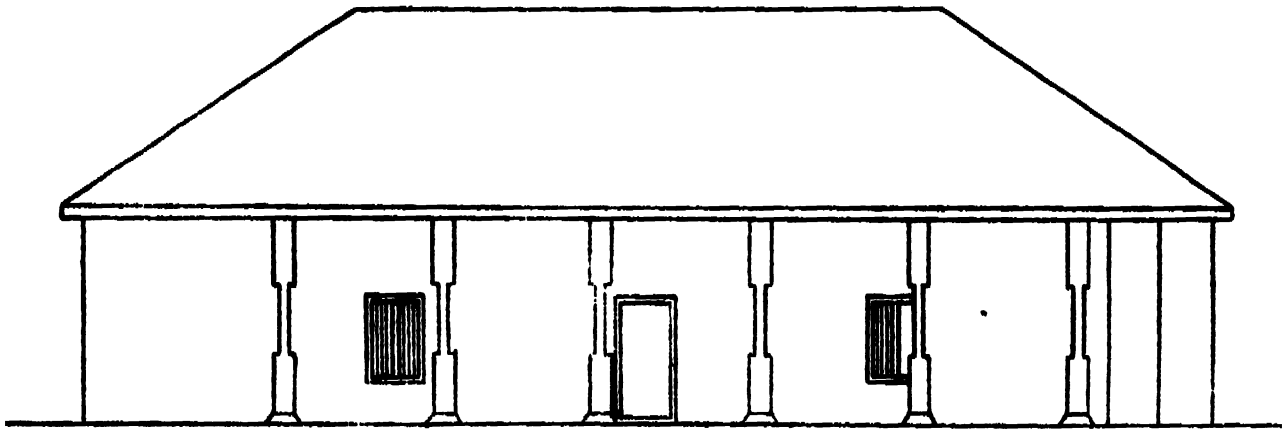
PRIMARY SCHOOL, KESAVARAM, MADRAS.

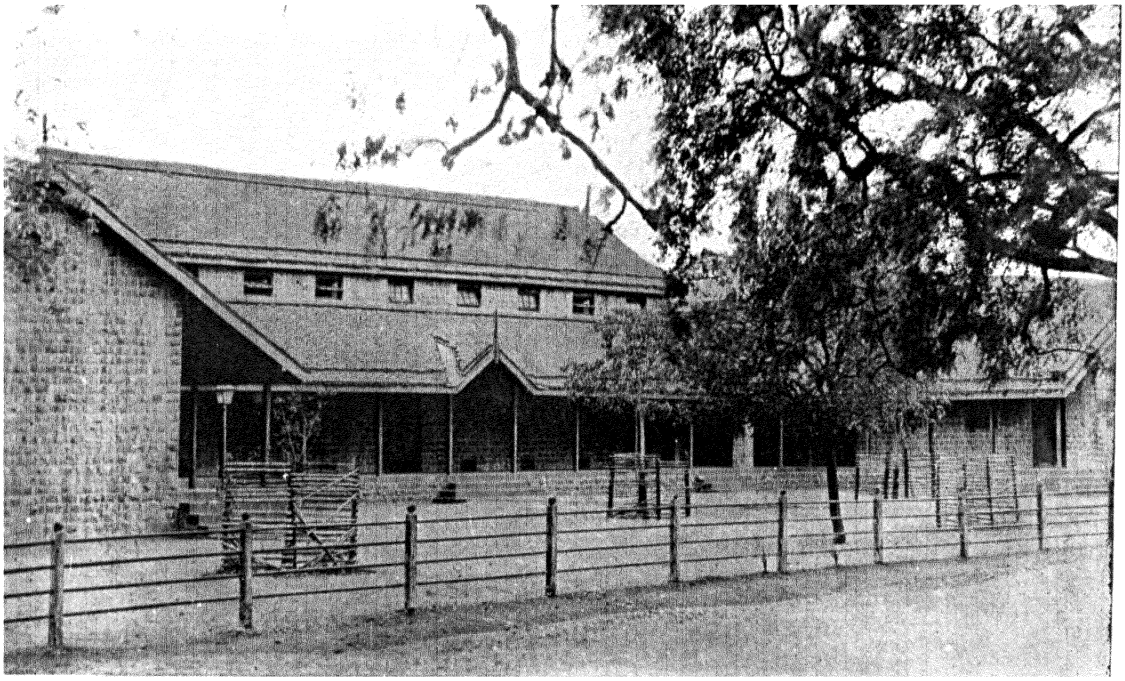
Scale of Feet.



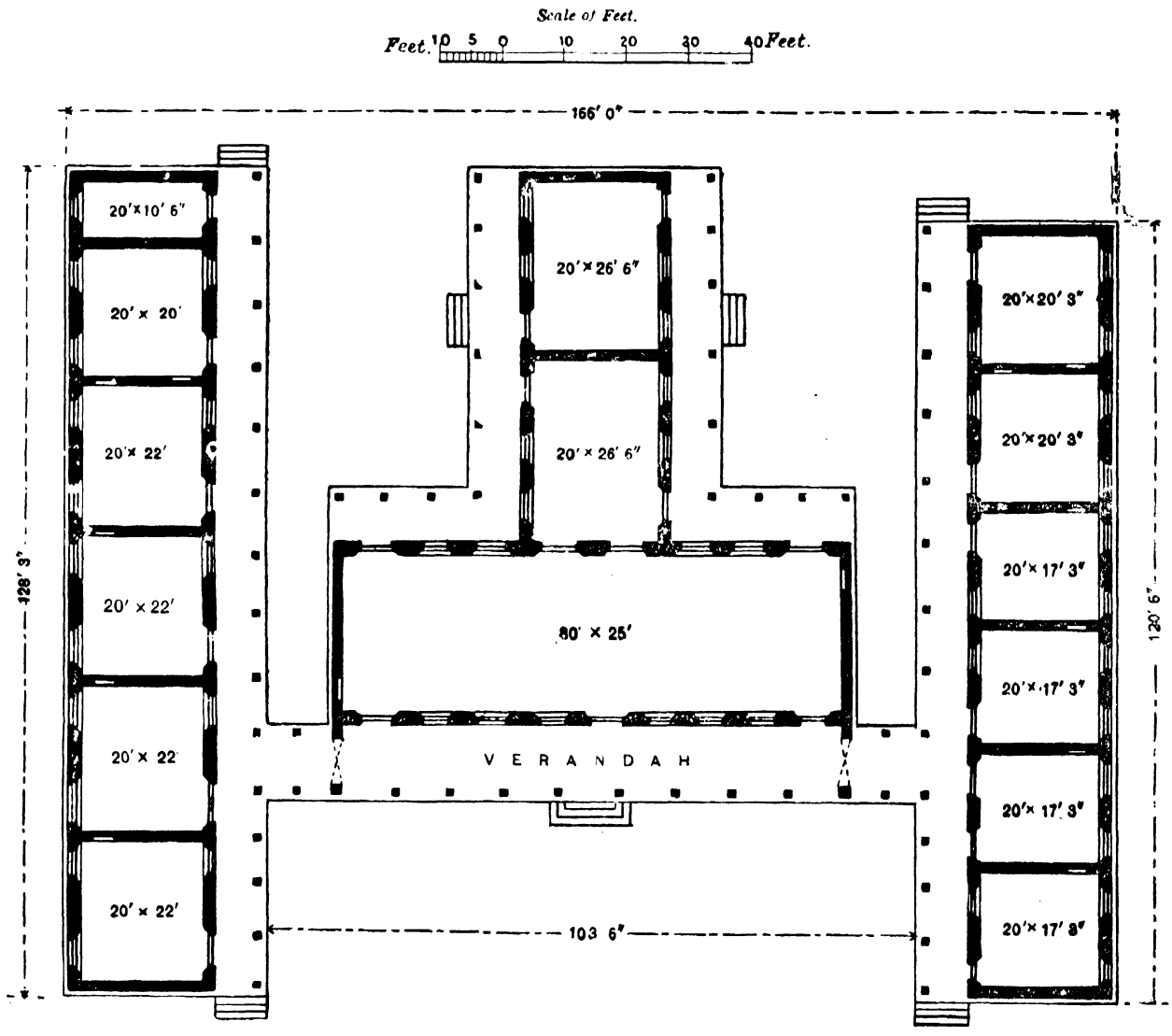
PLAN.

FRONT ELEVATION.





MUNICIPAL SCHOOL, DHULIA.



Municipal School, Dhulia.

The building was originally intended to accommodate two schools, namely, municipal school No. I and the municipal Urdu school for boys. But during the 4½ years that it was under construction the attendance at school No. I so much increased that it was decided to devote the building exclusively to the use of this school. The history of the school is a record of continued progress. As a rule every five years it becomes necessary to open a branch school out of the overflowing attendance. In spite of this the accommodation is found to be insufficient and what was formerly intended to be a gymnasium has been converted into a class room; also a nursery shed, which was close to the above-named room though outside the compound, has also been walled in and is used for class purposes. Even now the accommodation is inadequate, and it is in contemplation to open a branch school in Moglai, a suburb of Dhulia. The present attendance is 553.

The central hall which is principally intended for the annual examination as also for the assemblage of the whole school on special occasions, serves a threefold purpose at other times of the year. A third of it is utilised for office, library and laboratory. Half of the remainder is used for the drawing class while in the rest of it is held the class in the charge of the headmaster. All the other rooms, except the one at the southern extremity of the eastern wing which serves as a store room, are used for class purposes.

There is an open air gymnasium in the compound, while the school also maintains a small garden to the west of the main building.

This building was built by the Public Works Department on behalf of the Dhulia Municipality and was started in November 1892. It was completed and opened in March 1897.

The site occupied is a convenient one just outside the town and in the vicinity of the public offices and bungalows. The climate of Dhulia is dry, the temperature during the summer rising to 115° in the shade. In the rainy season the temperature still remains high. The rainfall is very variable, but 22 to 25 inches a year is the average.

The building is a single storeyed one and faces due north. The plinth is 3½ ft. high and is built of the local trap stone, the superstructure is of the same material.

The arches are of cut stone masonry. The roof consists of Moulmein teak wood work covered with round country tiles.

The principal rooms are one main hall in the centre 80 ft. by 25 ft; two class rooms in the centre 26 ft. 6 in. by 20 ft.; six class rooms in the west wing, two of 20 ft. 3 in. by 20 ft., and four of 17 ft. 3 in. by 20 ft.; six class rooms in the east wing, four of 22 ft. by 20 ft., one of 20 ft. by 20 ft., and one of 10 ft. 6 in. by 20 ft.

A verandah 8 ft. wide runs along the main building and the wings. The floor is of concrete in the main hall and the verandahs are paved with flags. The lighting is chiefly through glazed doors and windows and there are clerestory windows in the central building. For ventilation there are ventilators in the roof at the ridge and also floor ventilators.

The compound is surrounded by a railing composed of wrought iron pipes and wooden posts. The cost of the building was Rs. 46,267. This works out to about Rs. 3·10 per square foot of the plinth area.

Urdu Lower Primary School for Muhammadan Boys and Girls, Hook's Lane, Calcutta.

The Calcutta Hook's Lane Maktab is an Urdu primary school and has separate departments for boys and girls in charge of separate teachers. The building is a two storeyed one facing a mosque. The lower flat is for the boys' department and the upper for the girls. A fountain plays in the compound between the mosque and the school building. The school was started so far back as 1884, when it was located in the mosque. In 1899 Haji Abdulla dedicated a piece of land of about 8 cottahs in front of the mosque, on which a *kutcha-pucka* building was erected for the school. In 1905 the Government sanctioned Rs. 1,000 as a contribution towards the present building and Rs. 2,280 was contributed by Haji Abdulla, the Secretary, and Rs. 180 by subscriptions. The contiguity of the school to the mosque, an educational institution beside a religious one, strengthens the educational value of the former. The school is resorted to by the children of poor Muhammadans of the locality.

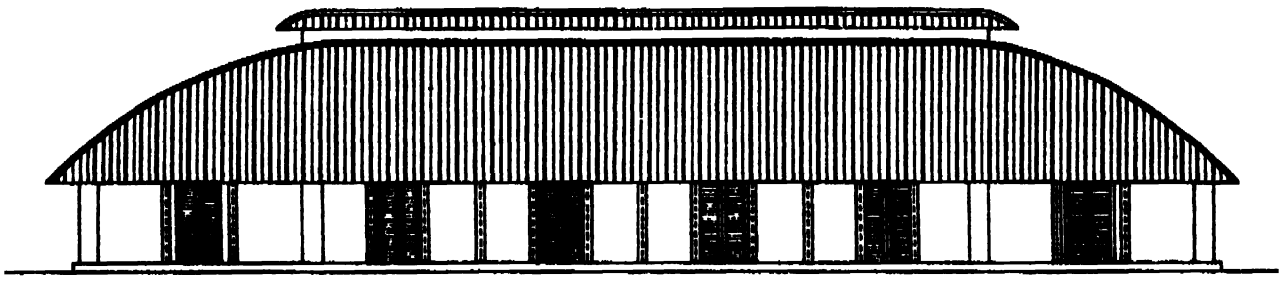
URDU LOWER PRIMARY SCHOOL
for Muhammadan Boys and Girls
AT HOOK'S LANE, CALCUTTA.

BOMPAS INSTITUTE—DUMKA MUNICIPAL
LOWER PRIMARY SCHOOL, BENGAL.

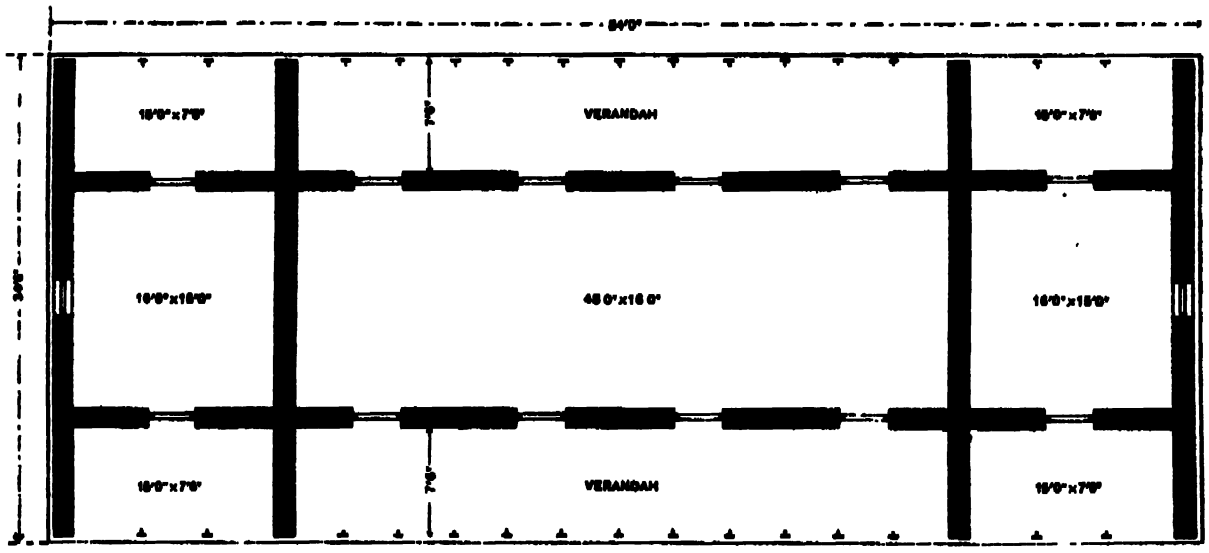
Scale of Feet.

Feet 10 5 0 10 20 Feet.

FRONT ELEVATION.



PLAN.



The Bompas Institute, Dumka (Bengal).

The Bompas institute is situated in the municipality of Dumka, on a piece of land measuring 3 bigahs 15 cottahs. The Hindu and Santhal hostels are immediately on its east, the Government zilla school on its south. The west is perfectly open, and on the north is a large piece of water reserved for drinking purposes.

The building consists of a main room measuring 48 ft. by 16 ft., two side rooms each measuring 16 ft. by 15 ft., and two verandahs on the east and west, each measuring 8 ft. by 7 ft. 6 in.

The land was given by the Zamindar, Mr. W. Maling Grant, to the municipality on a quit-rent of Rs. 5 a year, on the eve of the transfer of Mr. C. H. Bompas who had been six years Deputy Commissioner of the district, and his request was that the building erected on it should be named after Mr. Bompas. The Government gave a contribution of Rs. 420, the Dumka Municipality contributed Rs. 2,180, and Rs. 200 was paid in by the Bompas memorial committee.

The roof is of corrugated iron sheeting. One of the side rooms is used as a library and the other side room is at present unoccupied; in the main room and the verandahs Hindi and Bengalee classes are held.

The grounds are used for purposes of recreation by the residents of Dumka.

Village School, Gonda District.

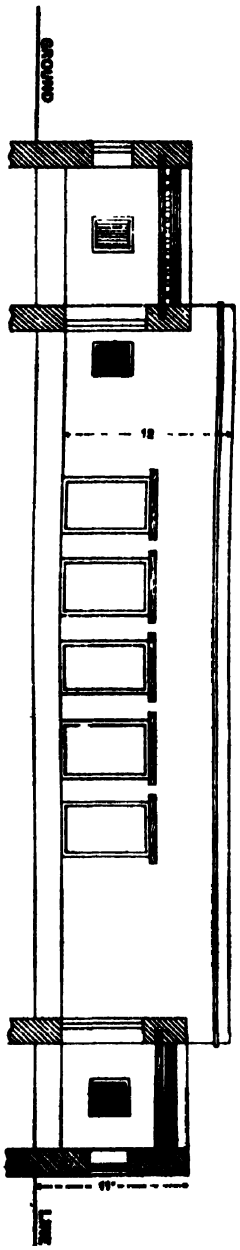
The school illustrated (Vidianagar upper primary school) is built on the standard plan designed by the District Engineer in 1905. This plan provides for buildings to accommodate about 40 boys at a cost of about Rs. 500, only local labour and local materials being required for the construction, and the land being usually given by the zamindars. If additional accommodation is required it is provided by increasing the length of the building.

The present building consists of a main hall measuring 24 ft. by 12 ft. with a side room 12 ft. by 8 ft., and a verandah 24 ft. by 7 ft. with a godown 7 ft. by 8 ft. The boys sit in the main hall and the verandah on benches and matting. At 12 sq. ft. per boy there is accommodation for 38 boys. The side room is for the teachers' use. The building is of second and third class bricks, it is whitewashed inside and outside, and has a tiled roof on wood rafters. It is well lighted and ventilated by six windows and the arches in the front. The premises are secured from trespass by a wall and gate which enclose a small yard for games and drill. The site has been chosen, as usual, at a little distance from the inhabited area.

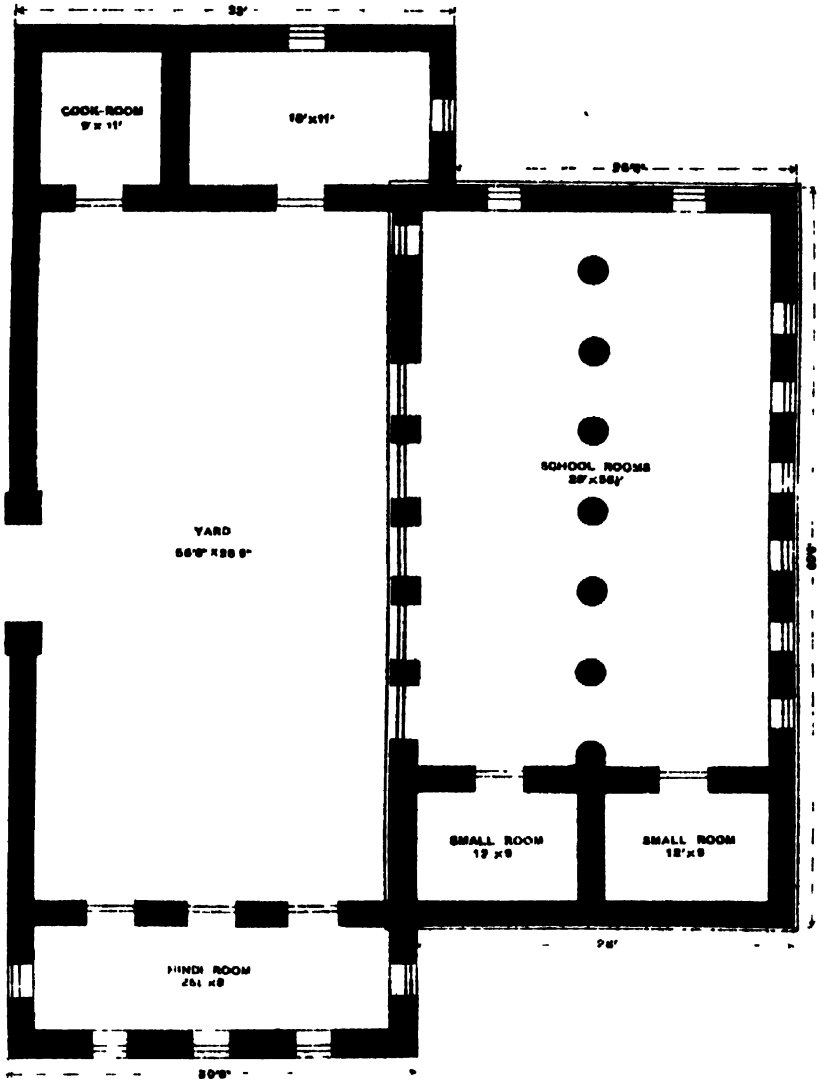
PRIMARY SCHOOL, RADUR, PUNJAB.

Scale of Feet

Feet 0 8 16 24 32 Feet



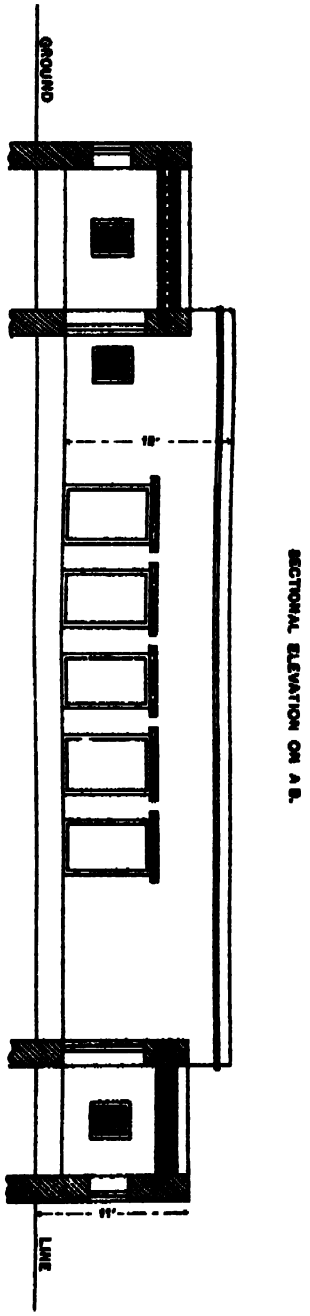
SECTIONAL ELEVATION ON A B.



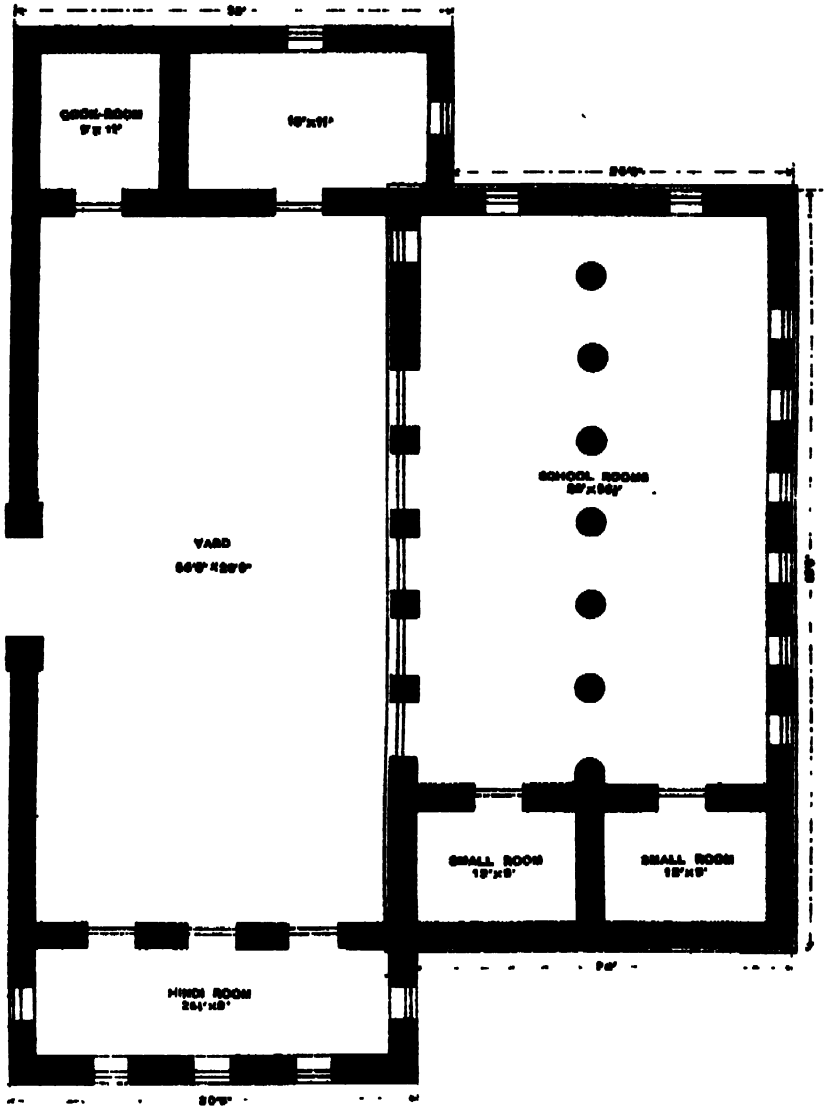
PRIMARY SCHOOL, RABWA, PUNJAB.

Scale of Feet

Feet 0 8 16 24 32 Feet



SECTIONAL ELEVATION ON A B.



Primary School, Radaur, in the Karnal District, Punjab.

The building is situated to the south of the town. It covers an area of 4,173 sq. yds., and consists of three spacious rooms, four kothries and a small compound. The two rooms facing the entrance gate are 45 ft. by 12·25 ft. by 12·25 ft. and 45 ft. by 10·25 ft. by 12·25 ft. respectively. The wing room to the right side is 40·75 ft. by 12 ft. by 12 ft. The three highest classes, with 26 boys, are taught in the room lying at the back of the building. The other one is assigned to the two lowest classes containing 35 pupils. The wing room is occupied by the Mahajani Department having 28 pupils. There are three teachers in the school and the total number of boys taught is 89. The rooms are well ventilated. They have deodar rafters and iron girders for beams. The floors are paved and the walls are *kutcha-pucka*.

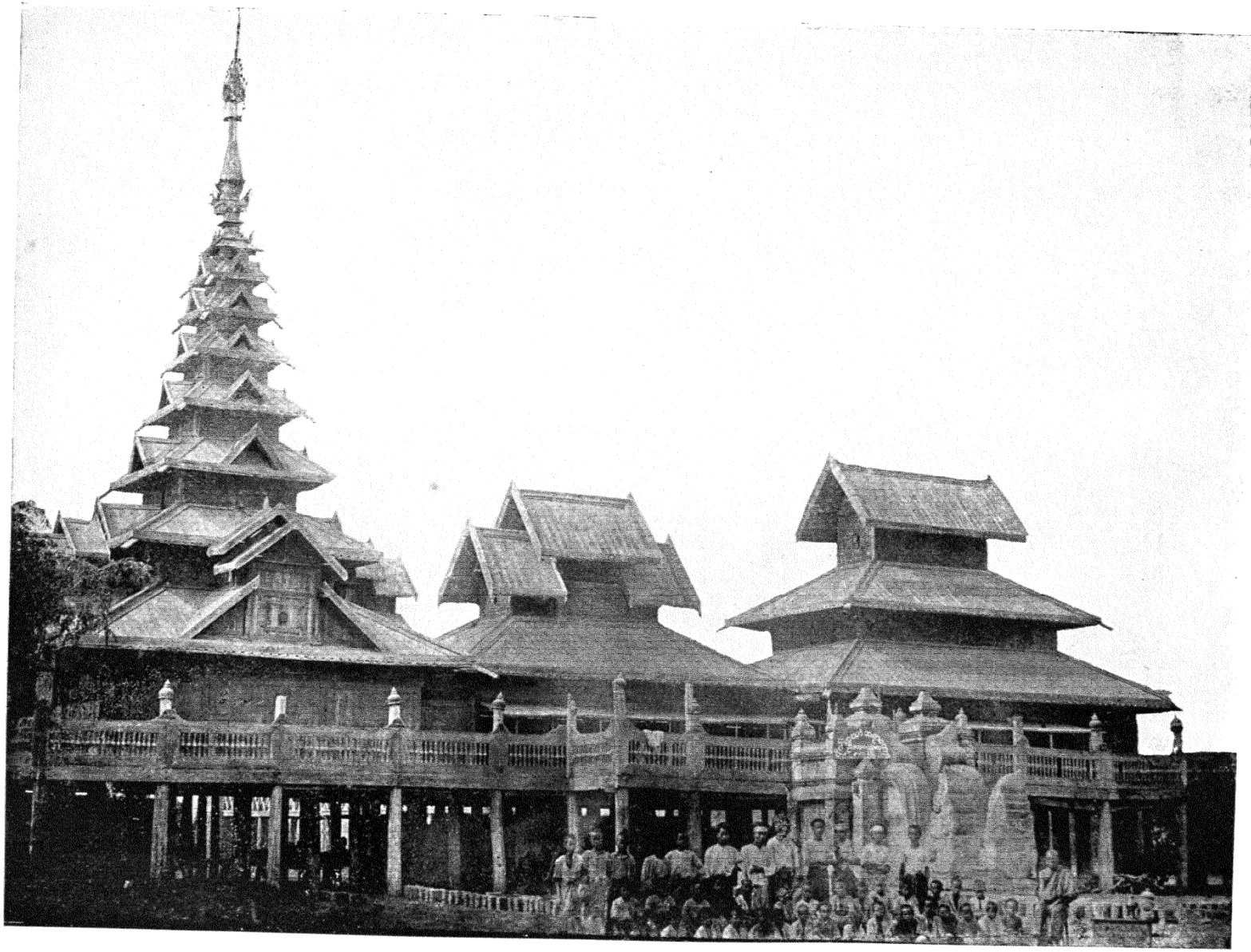
There is a small school garden in the right hand corner of the entrance gate in the courtyard. There is no playground attached to the school, and the compound is small. Physical instruction is therefore imparted on the road running in front of the school. The surroundings are not as healthy as they should be. A pool of stagnant water stands at the back of the building which should be filled up.

The two kothris measuring 12¼ ft. by 9¼ ft. by 12 ft. each and opening into the Urdu Department rooms are used as godowns. The other two on the left side of the entrance serve as quarters for the teachers. They are 12¼ ft. by 12 ft. by 10 ft. each. The building has been repaired and partly rebuilt this year. The cost amounted to Rs. 4,999 from the district funds.

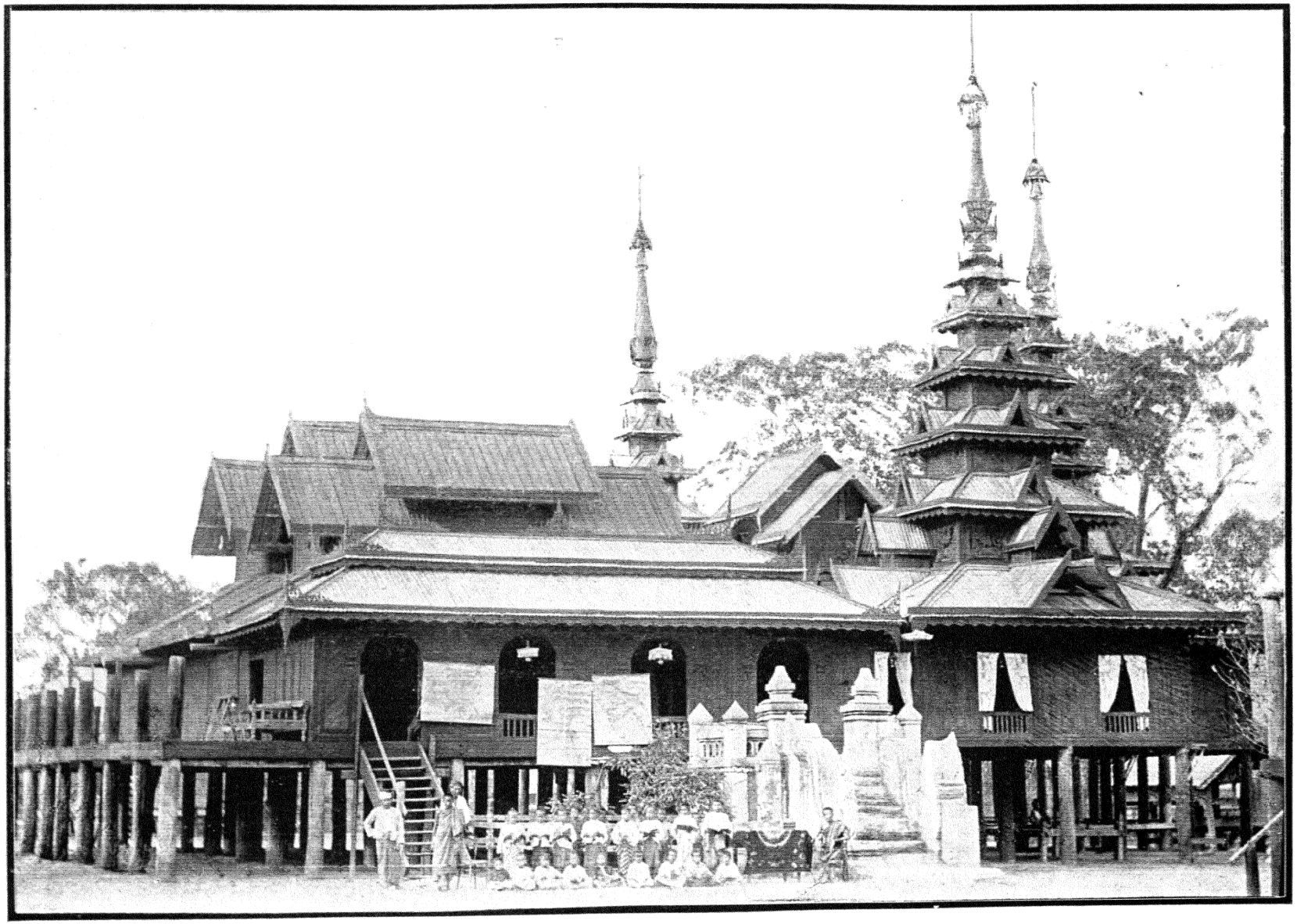
U Alawka's Monastic School, Sagu.

This monastery is a wooden one built on 134 round teak posts. It stands on a rectangular piece of ground measuring 230 ft. by 470 ft. outside the southern quarter of Sagu Town. The compound of the monastery is known as the "golden victorious land." In shape the building is oblong, measuring 110 ft. in length. The eastern wing is however slightly narrower than the western one, and measures only 47 ft. in breadth as against 67 ft. It is divided into three rooms. The eastern or the ante-room which measures 25 ft. 6 in. by 24 ft. 6 in. is utilised as a tabernacle for the images of Gautama and also as the Pongyi's bed room. It has a graduated turret about 30 ft. in height above it. Both the centre room and the western room which measure 37 ft. 6 in. by 17 ft. and 23 ft. and 24 ft. 6 in. respectively are used as class rooms and can accommodate about 100 pupils. About 9 ft. of the western room is partitioned off for the pupils to sleep in and also for the storage of the Pongyi's utensils. An open verandah runs right round the building and measures 8 ft. on the eastern and western wings by 15½ ft. on the south side and 22 ft. on the north from which run two brick staircases. There is also a 5 ft. broad verandah, 85 ft. long, leading to the Pongyi's lavatory on the south side. The building is raised 8 ft. off the ground and faces north. Throughout the front and back the building is provided with wooden shutters hinged above, which enable the entire length of the school to be opened for light and ventilation. The school is about 20 years old and contains no special work of art to be mentioned except that the inner sides of the shutters and the ceilings are decorated with carved square facets.

There is plenty of space in the compound for the children to take exercise and play about during the recreation hours.



U ALAWKA'S MONASTIC SCHOOL, SAGU, BURMA.



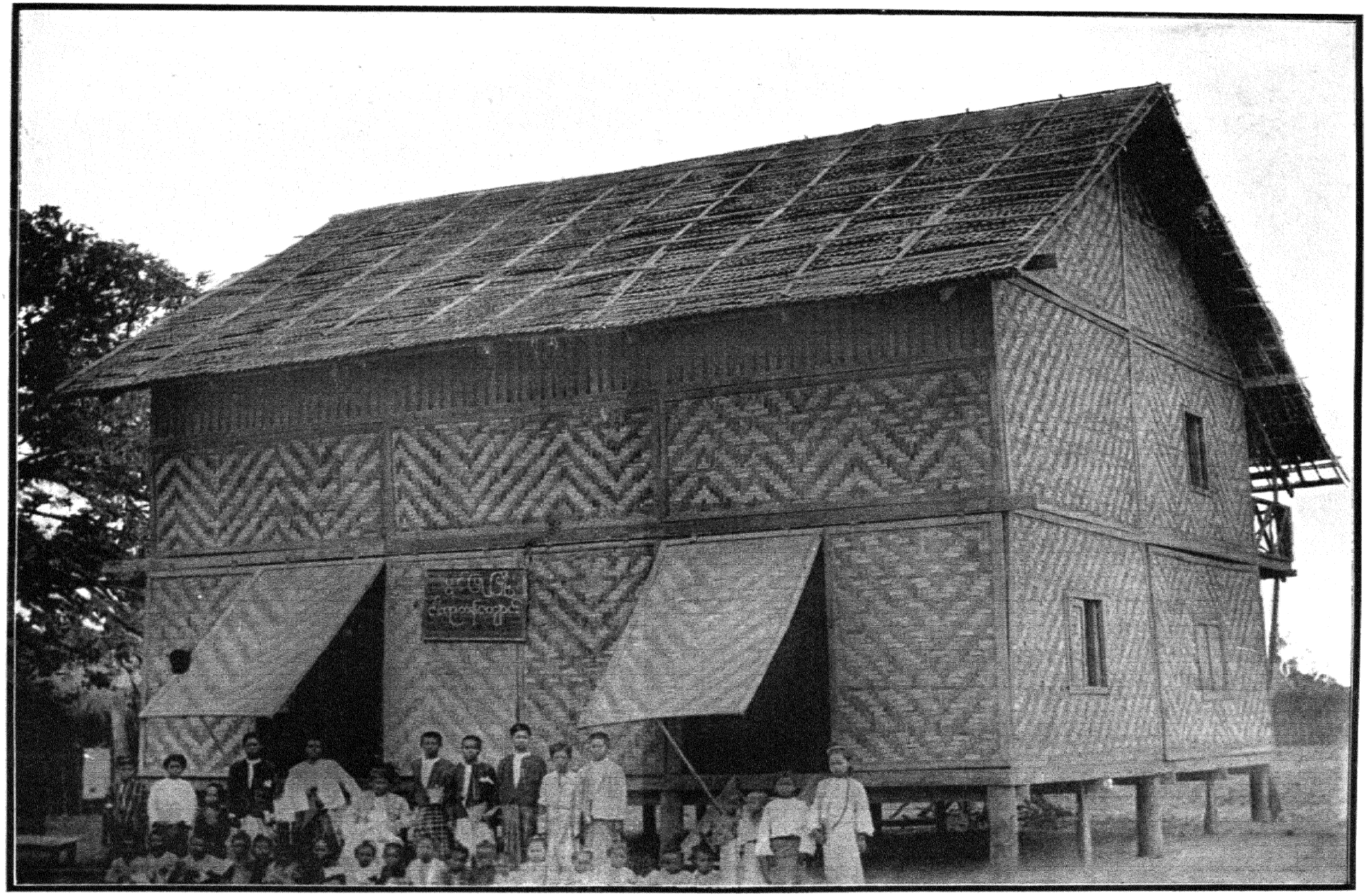
MONASTIC SCHOOL, (KYAUNG), MINBU, UPPER BURMA.

U Nyeinda's Monastic School, Minbu.

This school forms one of the nine Pongyi Kyaungs erected on an oblong piece of high ground known as a retreat for recluses. The ground on which the monastery stands slopes from south-west to north-east and has a natural drainage. All the rain water runs into a creek called the "Dokchaung" which skirts the school compound on the north side. The building is a wooden one built on 108 posts. The floor stands 7½ ft. high from the ground. The building faces south on which side there are two staircases, one brick and the other wooden, while another wooden staircase gives access to it from the back or the north side. An ante-room, measuring 17 ft. square, serves as a guest room, above which is a turret about 30 ft. to 40 ft. in height covered with zinc sheets. The work of teaching is done in the central hall measuring 40 ft. by 41 ft. and accommodating about 100 pupils. To the north of this is the bed room of the novitiates. It measures 33 ft. by 15 ft. and has a bamboo flooring. The northernmost room, measuring 17 ft. square, serves as the Pongyi's bed room. It has a corrugated iron roof and a turret about 30 ft. by 17 ft. which has a bamboo flooring and is sometimes utilised as an extra examination room. To the east of this spare room is the seventh room above which rises the third turret to a height of from 30 ft. to 40 ft. In this room the images of Gautama are kept. With the exception of the two places mentioned in which bamboo is used for flooring the whole building is planked. The roofing is composed partly of corrugated iron sheets and partly of teak planks. There are several windows and the whole building is well ventilated. An open verandah, 8 ft. broad, runs 69 ft. on the west side and 48 ft. on the north. As is usual in Pongyi *kyaungs* the children are seated on the floor in the main rooms in the usual kneeling posture during their lesson hours.

Rs. 500 School at Pwinbyu.

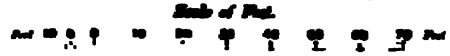
This school is built in accordance with the type plan provided by the Education Department. It stands on 12 posts and has plank floorings. The ground floor is raised 3 ft. and measures 30 ft. by 25 ft. It is used as the school room, while the first floor which measures 30 ft. by 12½ ft. is used as the quarters for the teachers. An open verandah 5 ft. broad runs along the back of the master's room. The school faces north and has sufficient windows to admit plenty of light and air. The wallings are of bamboo matting and the roof is made of split bamboos. The entire length of the front of the school is provided with bamboo "jhamps" which can be opened at will. A trellis work on the top further assists ventilation. The children sit on the floor of the school room which will accommodate about 70 pupils. They have low desks about 1½ ft. high, provided by Government, on which they do their writing. The school compound measures 120 ft. by 140 ft. and gives barely sufficient room for the pupils to play about during recreation.



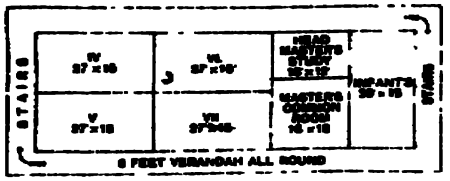
RUPEES 500 SCHOOL AT PWINBYU, BURMA.

THREE TYPE PLANS OF SCHOOLS, BURMA.

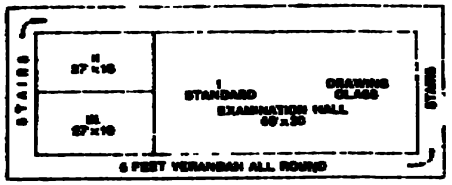
Scale of Feet.



MIDDLE SCHOOL

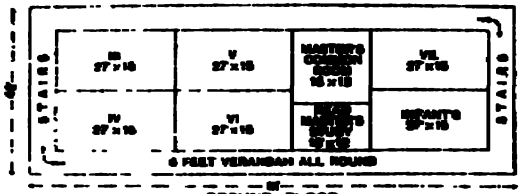


GROUND FLOOR

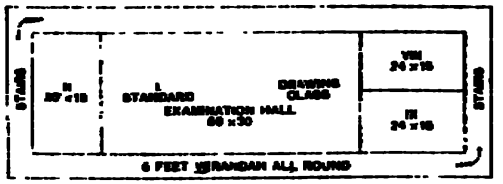


UPPER FLOOR

HIGH SCHOOL

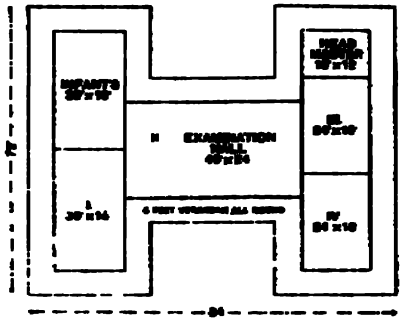


GROUND FLOOR

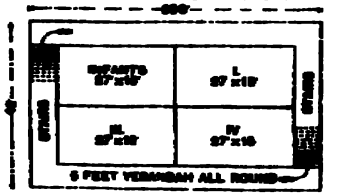


UPPER FLOOR

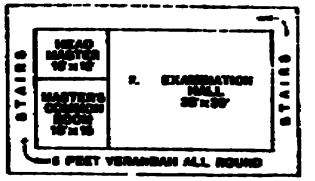
PRIMARY SCHOOL
SINGLE-STOREY



PRIMARY SCHOOL
ALTERNATIVE DOUBLE-STOREY

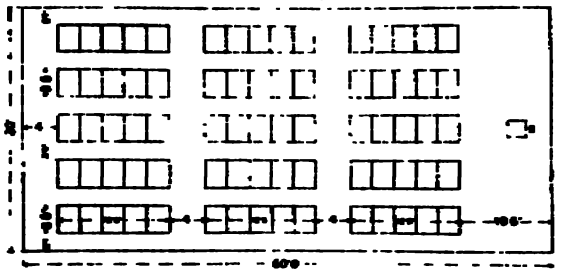


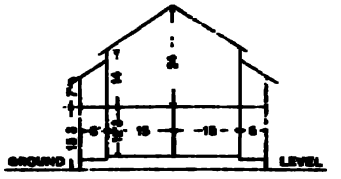
GROUND FLOOR



UPPER FLOOR

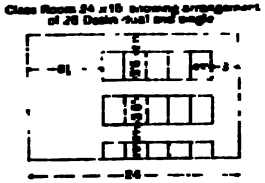
EXAMINATION HALL
SHOWING SEATING FOR 150 PUPILS AT DUAL DESKS

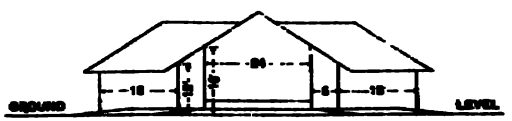




CROSS SECTION OF DOUBLE-STORIED BUILDING

Class Room 24 x 15 showing arrangement of 26 Desks dual and single





CROSS SECTION OF SINGLE-STORIED BUILDING

Memorandum for the guidance of Public Works Officers in the Design of Government Schools.

I. The Government school buildings which it is proposed to build in Burma comprise the following:—(1) Normal schools for the training of teachers; (2) practising schools attached to normal schools for the same purpose; (3) primary schools; (4) secondary schools (middle and high).

II. The normal schools may be either Anglo-vernacular or vernacular. The school building should include an examination hall, headmaster's study and masters' common room, with sufficient class rooms. The number of classes is not yet finally settled. One of the classes can be held in the examination hall.

Headmaster's quarters should ordinarily be provided. If a hostel (boarding house) is attached to the school the hostel may contain quarters for the headmaster who will also require a cook-house, latrine and quarters for the two servants. He will usually be a married man. Quarters should be provided for two school servants about 10 ft. by 10 ft. with cooking places in the verandah. Three separate latrines should be provided for general use by (1) masters, (2) pupils and (3) servants.

III. Practising schools may be either Anglo-vernacular or vernacular. Unless otherwise specified they will be the same as the middle schools. No masters' quarters are required but one extra quarter for a school servant and one extra latrine for pupils should be provided.

The school building should be designed for future extension in case it is desired to add a high department later on.

IV. Primary schools will usually be vernacular only. They comprise four standards and an infants' class.

Four class-rooms will suffice with an examination hall and a study for the headmaster.

No masters' quarters are required, but quarters for one school servant and three separate latrines for masters, pupils and servants should be provided.

V. Secondary schools may be either Anglo-vernacular or vernacular. The middle schools will usually include both primary and middle departments and the high schools all three departments unless otherwise specified.

The departments are made up as follows, at present:—Primary—Infants and Standards I to IV. Middle—Standards V to VII. High—Standards VIII and IX.

This distribution may possibly be modified later on but the total number will not be altered.

No masters' quarters should ordinarily be provided unless a hostel is attached in which case the latter may contain quarters for the headmaster. The accommodation provided should be proportionate to his rank and pay.

Quarters should be provided for two school servants and three separate latrines for masters, pupils and servants.

VI. Type line plans Nos. 111, 112 and 113, of 1906 are attached for primary, middle and high schools. It is not desired to spend much money on the ordinary primary vernacular schools, and they will therefore be built of cheap temporary materials except where existing regulations necessitate a non-inflammable roof. The other schools and also practising primary schools will be built of permanent materials with a due regard to economy in construction.

In the line plans attached the double storey type has been adopted for the larger schools for the sake of economy. In the case of Anglo-vernacular schools some arrangements to deaden sound is necessary as the pupils usually wear shoes. A re-inforced concrete upper floor, or a plank floor with lath and plaster ceiling, should be provided. The class rooms are shown on the ground floor in order that the partition walls may be of brick to deaden sound, otherwise it would probably be more convenient to have the hall on the ground floor.

VII. The numbers attending a school may range from 100 to 150 for a primary and from 150 to 300 for a secondary school, or even larger figures in important centres like Rangoon, Mandalay, Prome, Bassein, Moulmein, etc. When the numbers in a standard rise considerably above 30 it is usual to divide the standard into two or three classes. In the lower standards the numbers are usually large while in the higher the numbers may sometimes not exceed 15 or 20. It is evident therefore that very variable conditions have to provided for and the type line plans attached to this note can only be taken as a guide. The minimum size of class room may, however, be taken at 24 ft. by 15 ft. This is shown as designed for 25 dual and single desks, but in this case the space allowed for the master is somewhat too small and is an absolute minimum. The single desk is the ideal arrangement; practically we are never likely to get beyond dual desks in Burma and they will not be in general use for many years to come. These schools are a new institution and it is anticipated that they will expand considerably as time goes on. It may therefore be necessary in the future not only to extend the buildings but also to enlarge the rooms. For the present therefore they should be designed of timber framing with bricknogged walls below and slate or plank walls above, and the floors should be completed before the partitions are put in, so that the latter may be readily shifted without leaving an uneven floor.

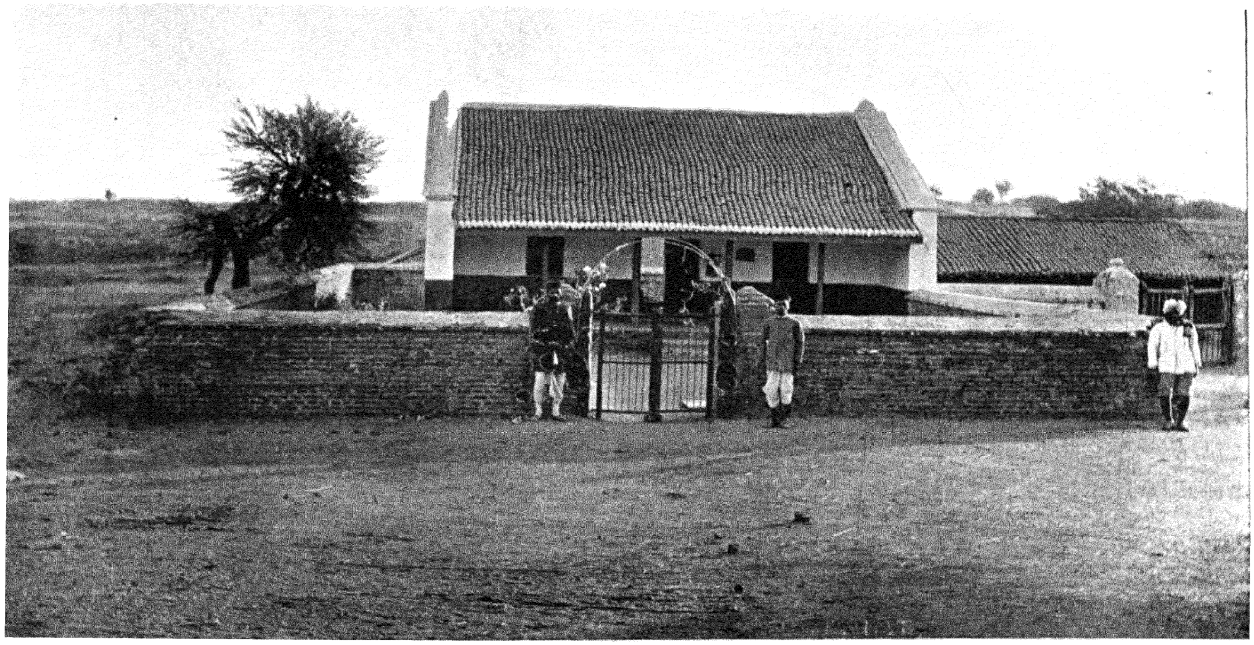
These type plans are not applicable to European schools for which larger rooms will be necessary.

VIII. The question of light requires careful consideration. Wherever possible the pupils should have the light on their left. Cross lights are apt to make it difficult to see what is written on a blackboard and should be avoided where possible. Also if the master has windows facing him he cannot see the pupils properly, therefore the best arrangement is with one side and both end walls blank and light on one side only. The rooms should not then be very wide.

IX. Mural blackboards are to be provided, usually behind the master's desk and facing the pupils. For this purpose a small quantity of black cement called Muraline has been ordered from England as an experiment, and if it proves a success it can be brought into general use.

X. The compound should usually include sufficient room for a playground and should be fenced.

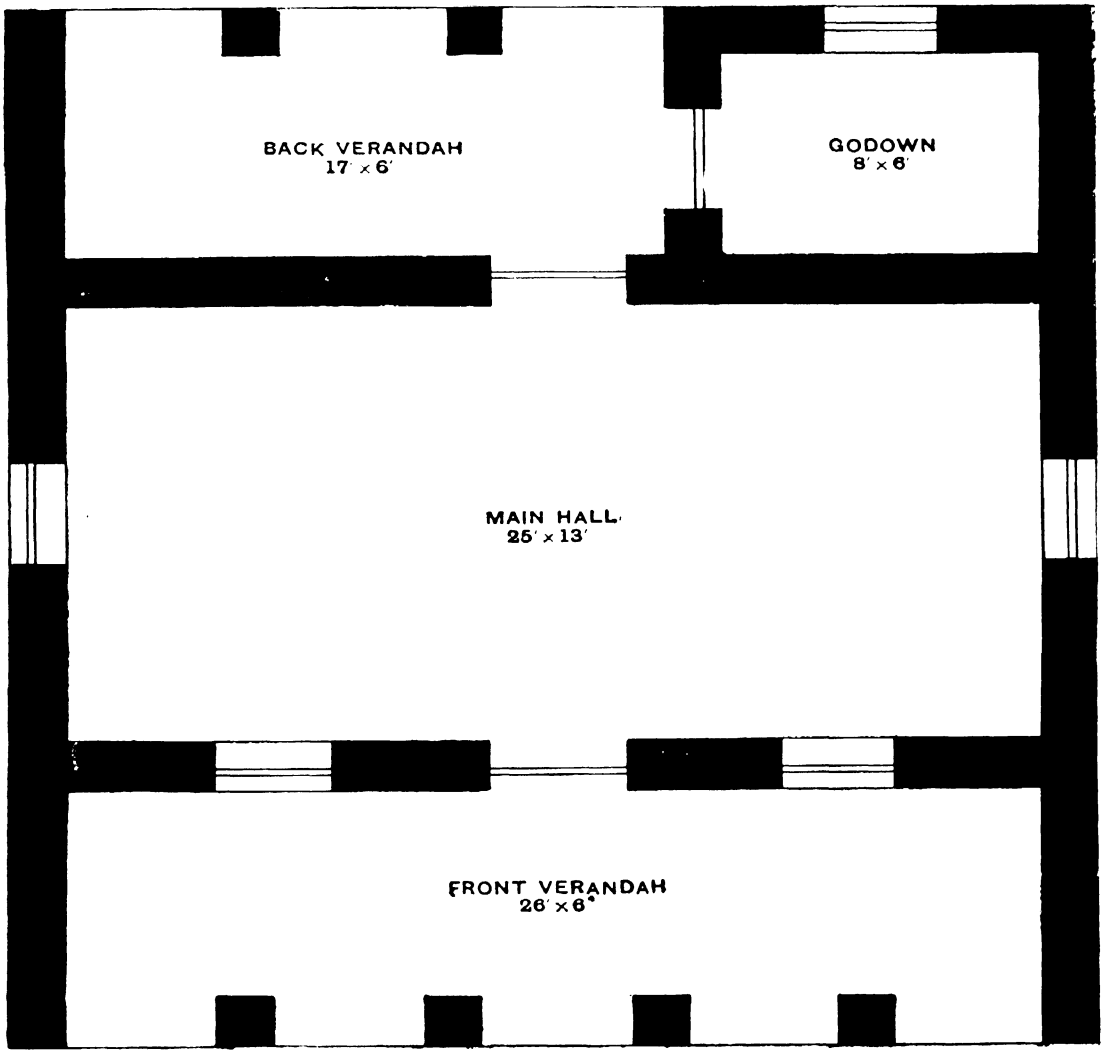
XI. In the case of girls' schools quarters should be provided for the head mistress.



PRIMARY SCHOOL, MORTAKKA, CENTRAL PROVINCES.

Scale of Feet.

Feet. 5 0 5 Feet.



Primary School, Mortakka.

The school building at Mortakka was constructed in the year 1902 at a cost of over Rs. 600 by Seth Laxman Champalal of Sanavad. The compound comprises an area of about 451 sq. yds., the central portion of which is occupied by the school building measuring 31 ft. 3 in. by 28 ft. 9 in. The school building consists of a main hall which inside measures lengthwise north-south 25 ft. and breadthwise east-west 18 ft., and has verandahs on either side 6 ft. wide.

The school faces west. The front compound measures 36½ ft. from the plinth of the building to the compound walls on the east and west. By the side of the compound wall a strip of 1 foot has been used to grow flower plants of various kinds and the remaining portion serves as a playground for the boys. The back compound measures 36½ ft. to east and west and 35 ft. 6 in. north and south, and is used wholly for gardening purposes. It is divided into 12 beds in which various kinds of English and Hindustani flower and vegetable plants have been grown. On the north there is a piece of waste land about half a furlong square used for playing football.

The roof at the back is 6 ft. 10 in. above the plinth and the distance between the ground of the compound and the eaves measures 8 ft. 3 in. The eastern and western walls are 10 ft. 9 in. high above the plinth. The height between the highest ridge beam and floor is 14 ft. 8 in. and the northern and southern walls are also of the same height above the plinth but a little sloped at the top. In each of them there is an aperture 1 ft. 3 in. broad for letting in light at a height of 12 ft. 1 in. from the floor. The roof is supported on two triangular beams of teak wood, the altitude of which is 4 ft. 6 in. The walls above the plinth are made of bricks and have been plastered with lime mortar. There is a coating of dammar up to an height of 2 ft. 10 in. from the floor. All the doors and windows are coloured with red earth. The front verandah is used to seat the first class and sometimes the infants, while the back verandah and class room accommodate the remaining classes. The ground upon which the building is located slopes from west to east and the wind throughout the year generally blows in the same direction. The floor is not paved with stone but is made of lime concrete. It is plastered with cow-dung every fortnight and *tatpattis* have been supplied for the boys to sit on. The ceiling consists of bamboos placed over rafters of teak wood. The roof is tiled with semi-circular tiles called nalias. The width of the rear slope of the roof is 17 ft. 8 in. and of the front one 17 ft. 6 in.

The climate of this place is temperate and healthy but the rainfall is scanty. There is no glare as the light comes through doors and windows from east and west mostly.

The infant, first and second classes are seated on *tatpattis* and the third and fourth on benches. Examinations are held in the hall.

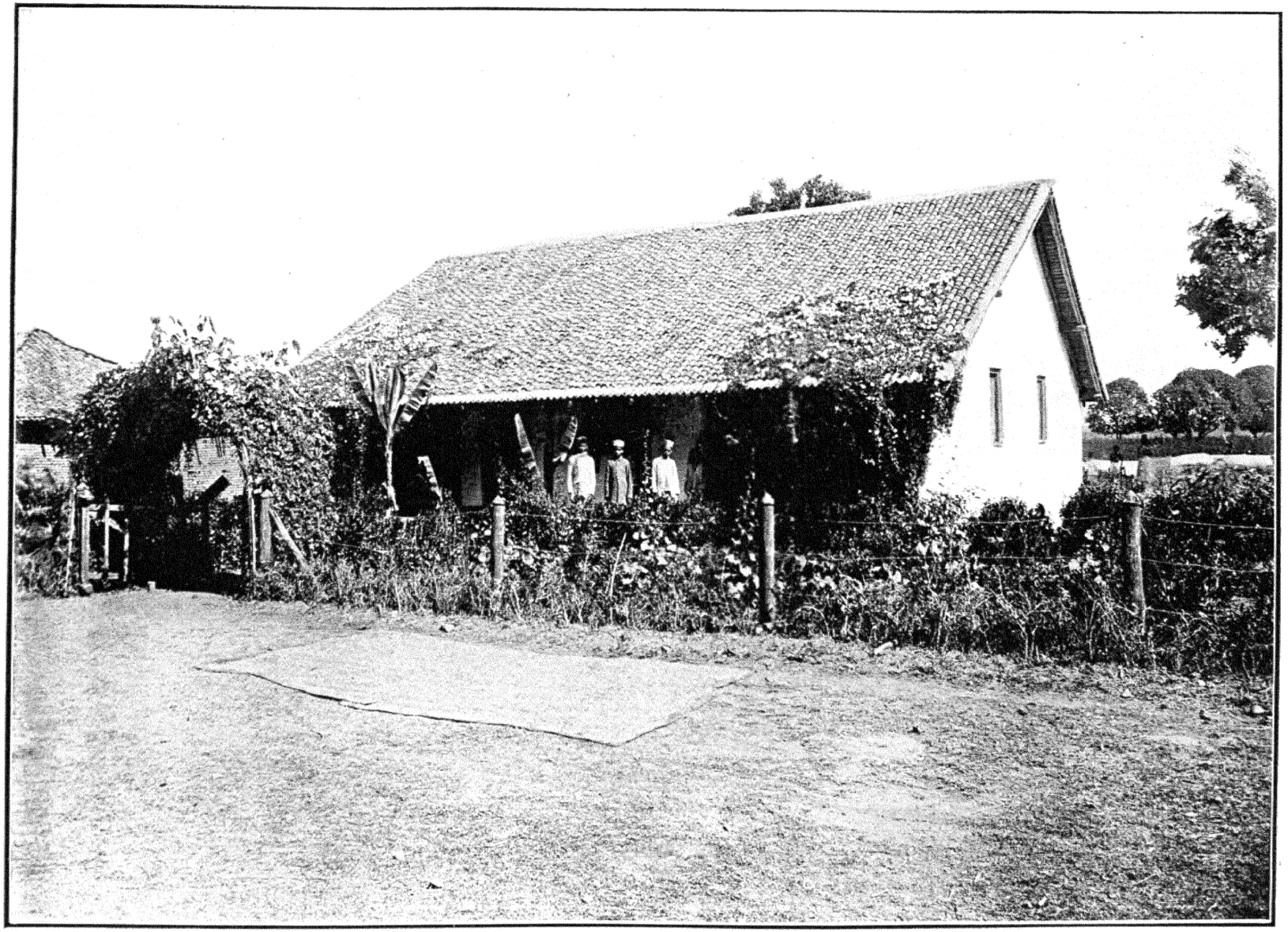
The infant class is seated in a semi-circle and the others are arranged on three sides of a rectangle. About Rs. 400 have been spent on furniture, apparatus and repairs of the building during the last twenty years.

Primary School, Itarsi.

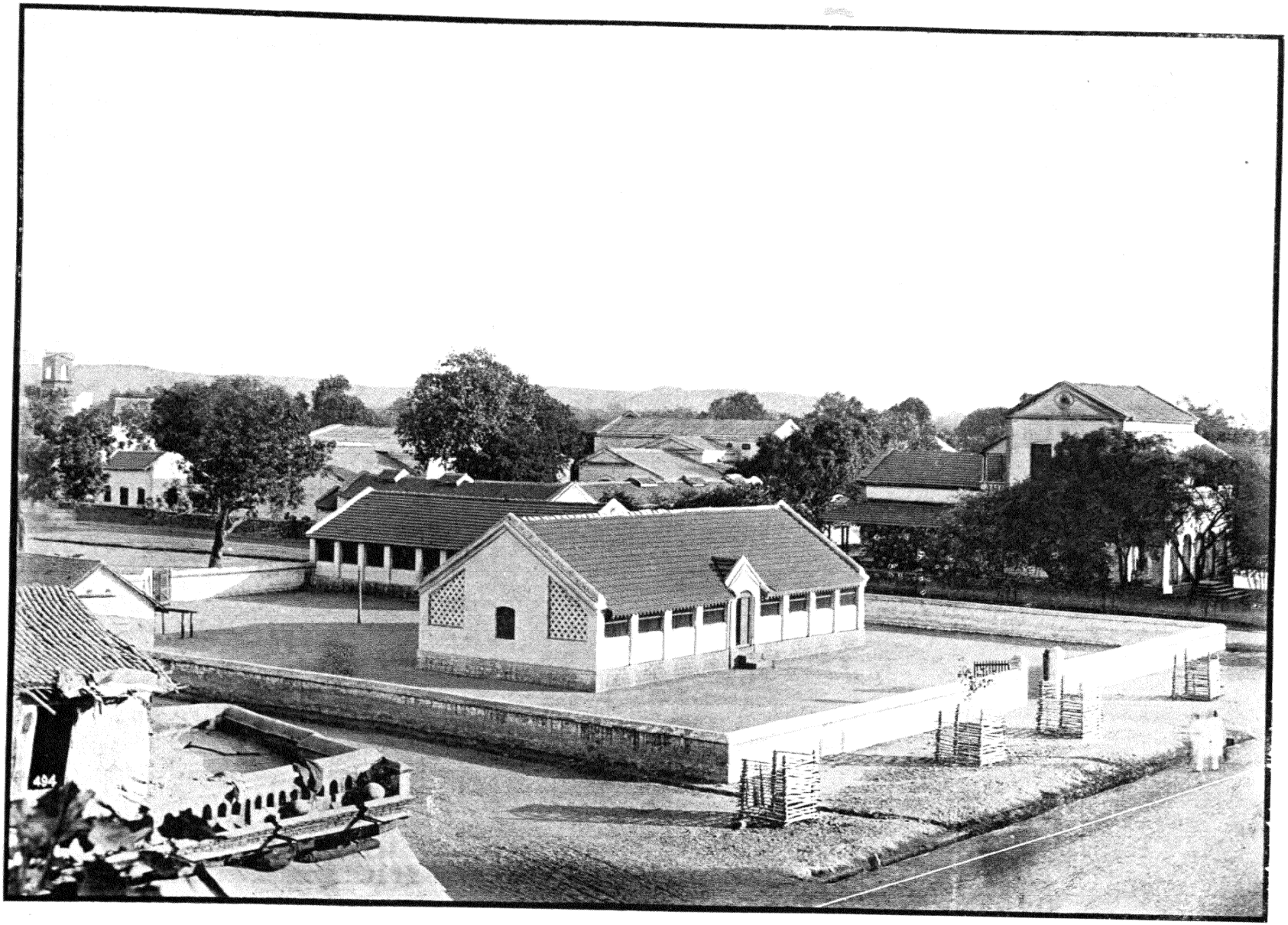
The building was completed and opened in 1904. It occupies a position in a compound of about 2,688 sq. yds. containing a flower and vegetable garden and a gymnasium.

The building is an oblong one and single storeyed, facing west and having two verandahs on the east and west sides, each 42 ft. 10 in. by 7 ft. 7 in. in dimension. The height of the school in the middle is 16 ft. 5 in. The middle beam is supported by six pillars each 1 ft. and 8 in. sq. The floor is paved with stone flags. At the extremity of the east verandah, there is a small store room in the south-east corner. The lighting is mostly through big open doors and windows on all sides. The ventilation is sufficient. There is a well in the school compound on the south side. The school is situated outside the town on the main road to Hoshangabad. The compound is surrounded by wire fencing about 3 ft. 8 in. high. The building was constructed by the district council at a cost of Rs. 1,700, but has since been transferred to the Itarsi municipality.

The number of boys enrolled is 142. There are 62 in class I, 32 in class II, 22 in III, 15 in IV, 8 in V and 3 in VI. The sixth class is accommodated in the southern half of the hall, on the western side, the fifth in the middle, and the fourth on the east of it. The third class occupies the northern half of the hall on the east side, class I (section II) in the middle and class I (section I) in the west of it. The second class occupies the eastern verandah. The building provides insufficient accommodation for 142 boys and requires extension.

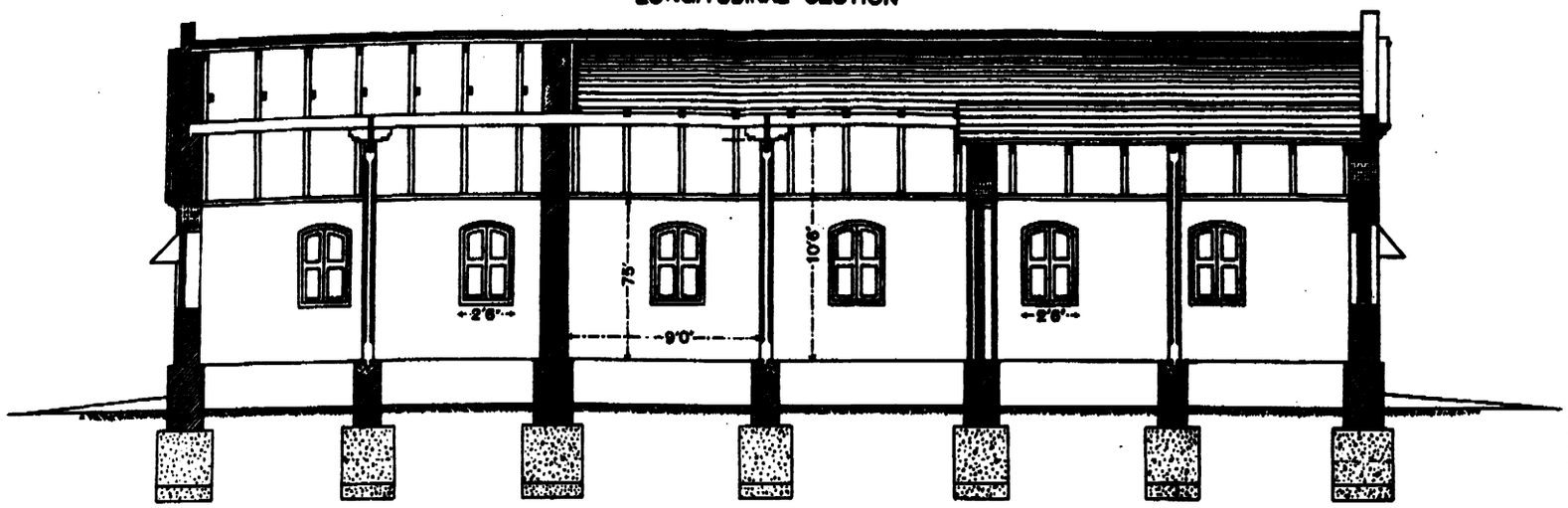


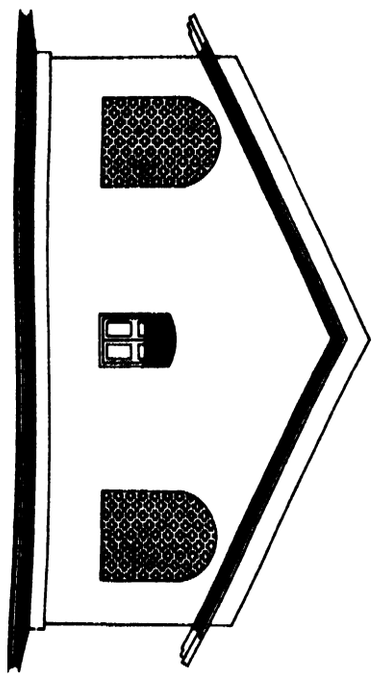
PRIMARY SCHOOL, ITARSI, CENTRAL PROVINCES.



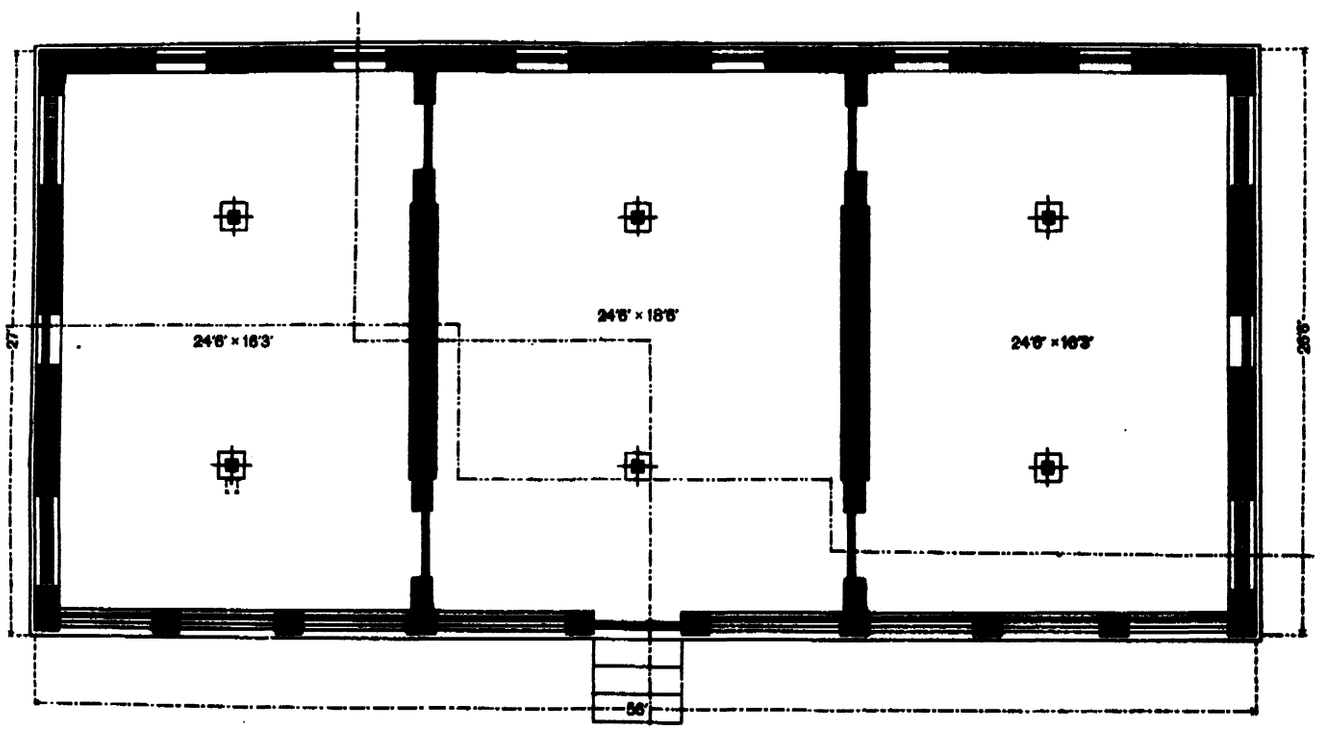
MUNICIPAL BOYS' SCHOOL, AMRAOTI.

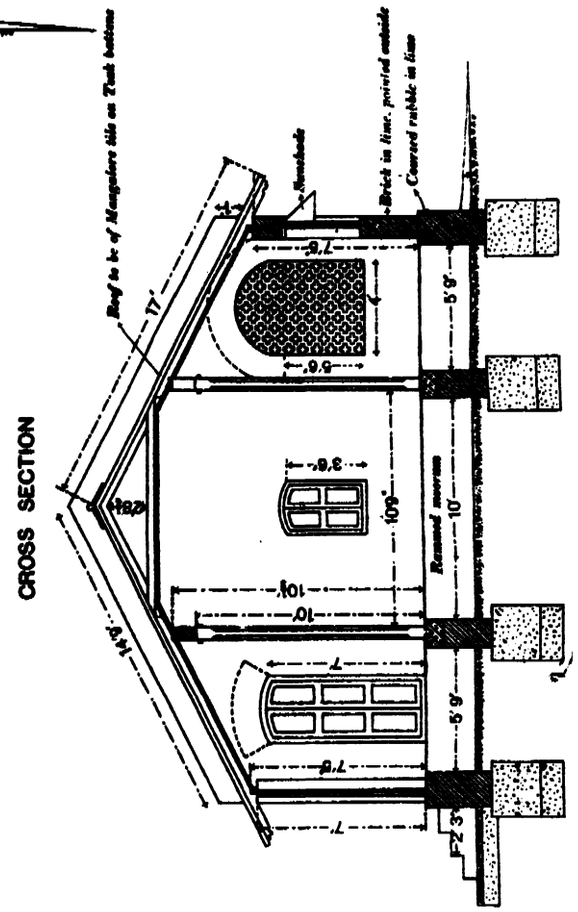
LONGITUDINAL SECTION





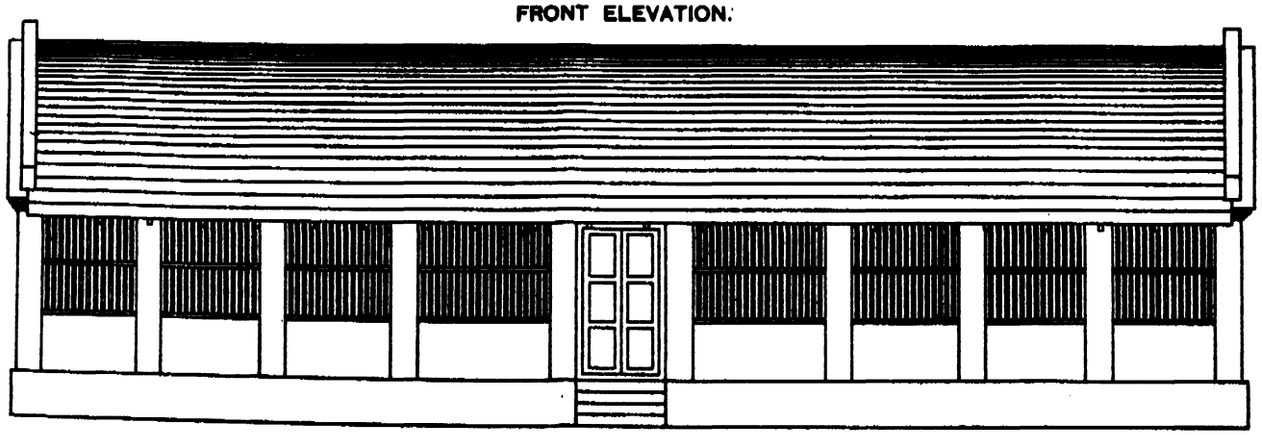
END ELEVATION.





CROSS SECTION

FRONT ELEVATION.



Municipal Marathi Boys' School, Amraoti.

This school is situated outside the Bhusara gate and very near it on a main street leading to the Lady Dufferin Hospital.

It has a compound of 149 ft. by 122 ft. enclosed by a masonry wall 4½ ft. high. The principal gate faces the west and there is a smaller gate behind facing the east.

The school consists of three blocks. The principal block was built in 1894 at a cost of ₹3,200 and was originally intended to accommodate 125 boys as indicated by an inscription on the front door, but can conveniently accommodate only about 100 boys. It is situated in the middle of the compound, and the two smaller ones are one on each side of it along the northern and southern walls of the compound and behind the principal block.

The principal block is 61 ft. by 27 ft. running north and south. It has a plinth 2½ ft. high and the floor is chunam and concrete and covered with bamboo matting. It is provided with one main door and eight windows and is divided into three rooms of the dimensions of 24½ ft. by 18½ ft. each. The wall to the west is only 3½ ft. high but is surmounted by railings reaching to the roof. This arrangement ensures a good supply of air and light. The walls are brick in lime with lime plastering inside and outside; and there are honeycomb work openings in the gable ends. The roof is 13 ft. high, is provided with teak wood ceiling and covered with Mangalore tiles.

The second block runs east and west along the southern wall of the compound and behind the main block. It has a plinth 2½ ft. high. The floor is of chunam and concrete covered with bamboo matting. It is 55 ft. long by 23 ft. broad and consists of three rooms. The central one 24 ft. by 18½ ft. and the two side rooms are each 24½ ft. by 16 ft. This block can conveniently accommodate about 90 boys. The wall in the front has wooden railings up to the roof, fixed in a masonry work 3½ ft. high, as in the principal block. The roof is of Mangalore tiles.

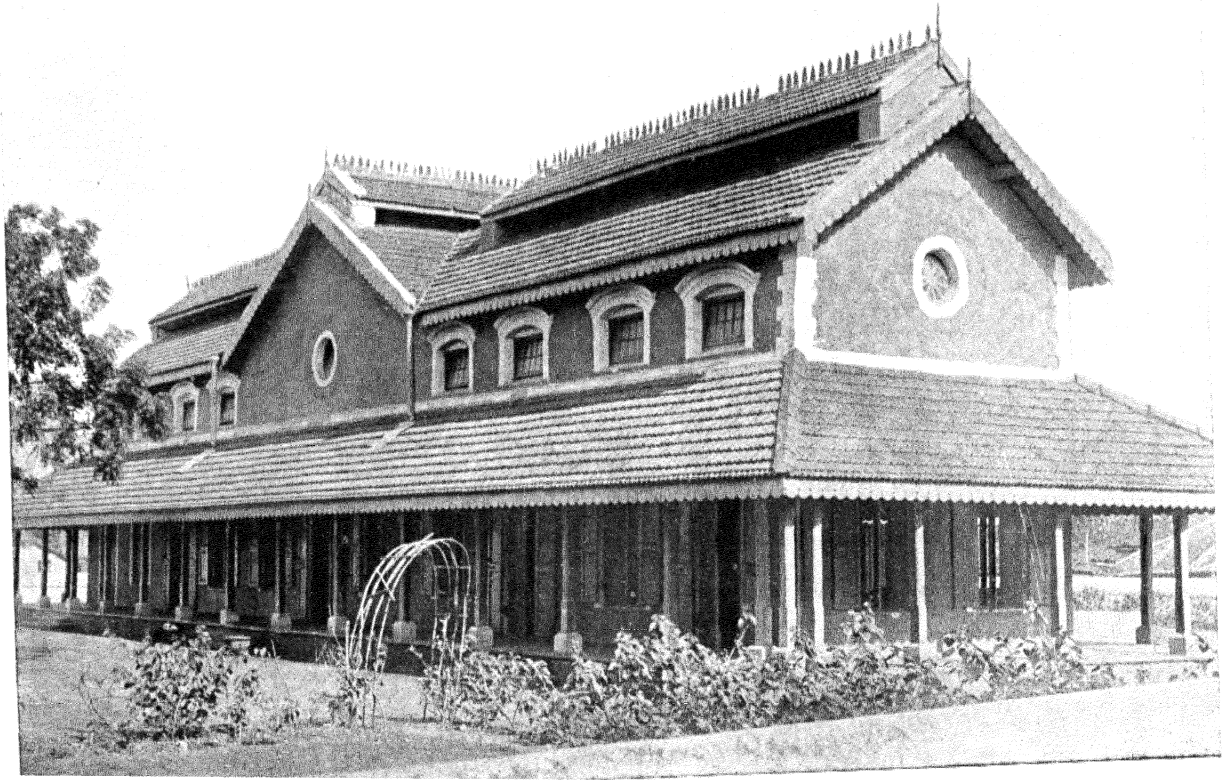
The third block is the smallest. It is only a temporary shed, situated opposite the second block, and extends east and west along the northern wall of the compound. It consists of one hall 52 ft. by 16 ft. Sufficient air and light are secured in this building also by the wooden railing arrangement described in the case of the other two blocks. The roof is of country tiles.

There are seven rooms in all available for classes (three in the first block, three in the second block and one hall in the third block), but as the enrolment at present is 283 (and it was even more than this some time ago) and there are two sections of each of the four standards and one section of the infants, two classes had no room in the present three blocks and so they are located in the municipal shed that was formerly used by the Government Industrial School, Amraoti, and seven classes are in the three blocks, the infant class which has 63 boys being located in the temporary shed, *viz.*, the third block.

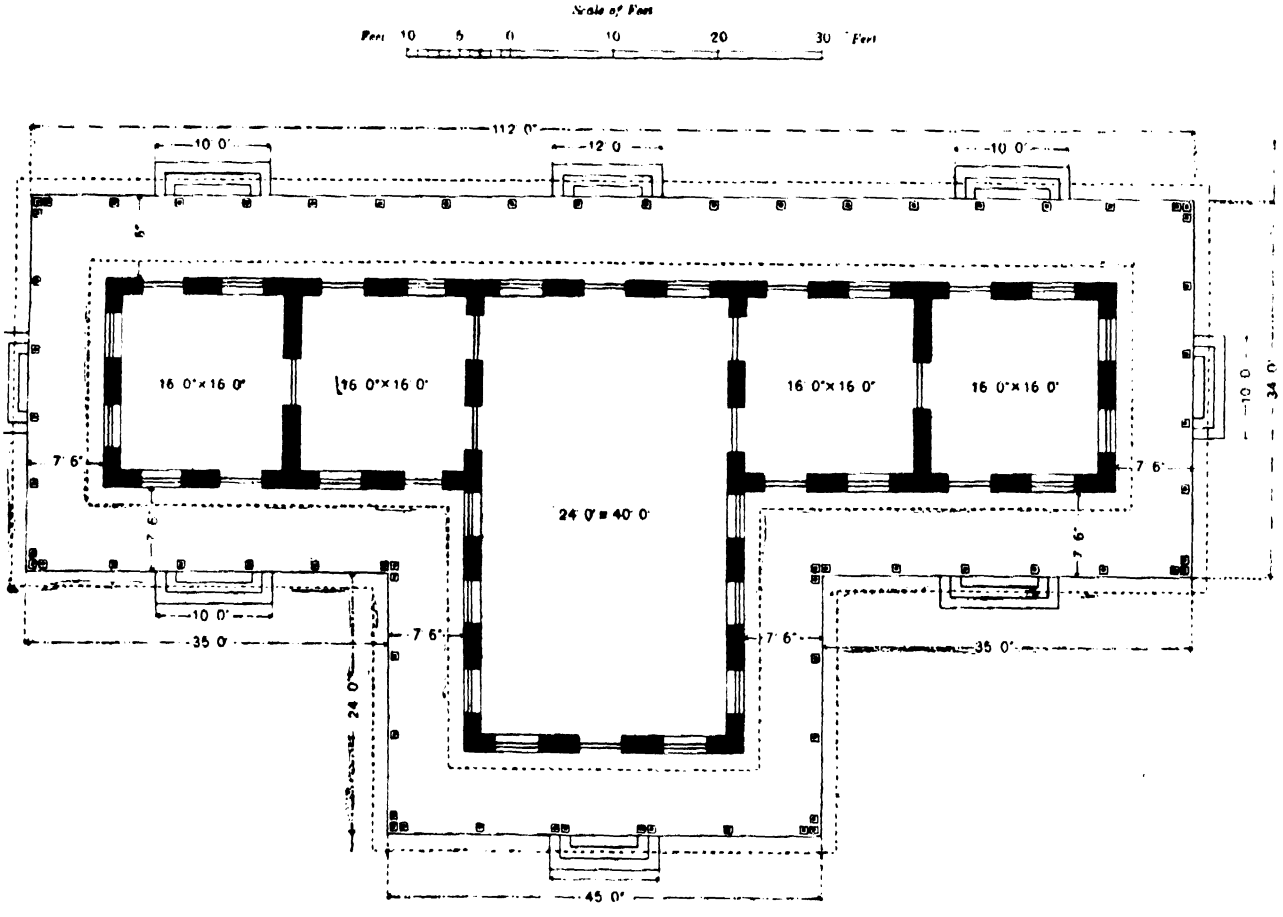
Boys of the highest class are, as far as possible, provided with benches; the rest of the classes sit on the floor.

The open space between the three blocks as well as that in front of the principal block is used as a playground.

SCHOOLS FOR GIRLS



GOVERNMENT GIRLS' LOWER SECONDARY SCHOOL, ONGOLE, MADRAS.



Government Girls' School, Ongole.

The school building faces north and is enclosed on all sides by a compound wall 5 ft. 8 in. high, with two gateways, one on the east, the other on the west. The building consists of a central hall 40 by 24 ft. with two class rooms on either side, each of which is 16 ft. square.

The roof is covered with Mangalore tiles and has large ridge ventilators. The floor is of stone. All round the building there runs a verandah 7 ft. 6 in. wide. To the south-east of the building within the school compound is a well 11 ft. in diameter, round which is laid out a small garden 73 by 44 ft. To the north-west of the building is the playground, covering an area of 2,940 sq. ft.

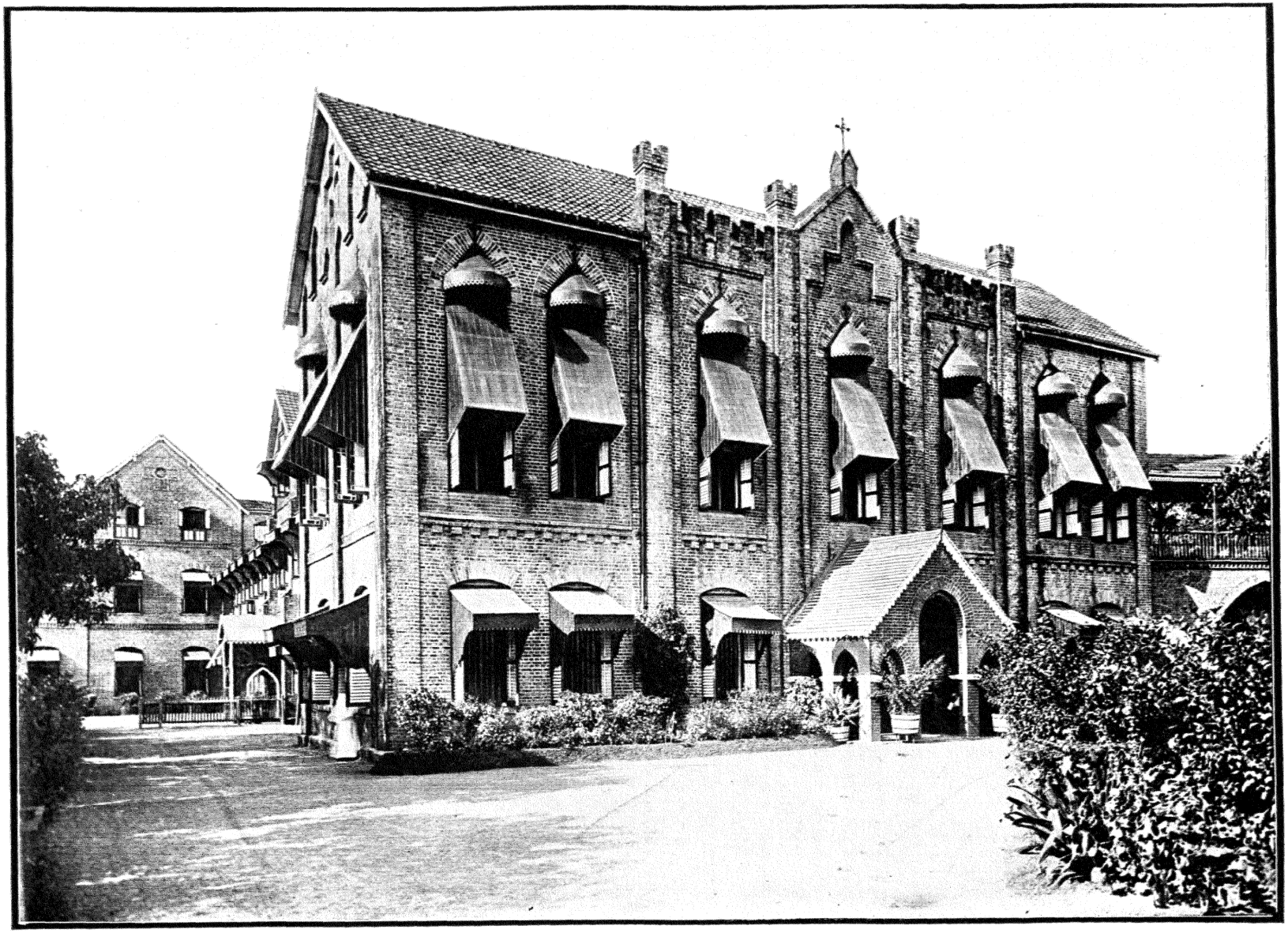
The Government Girls' School, Villupuram.

The construction of the building was begun in 1904, and was completed in 1905. The school was located in this building in December 1905. It stands in the centre of the town in a very good locality. The length and breadth of the main building are 82 and 42 ft. respectively, and it has a spacious compound about 120 ft. square with a well and a latrine at the north-east and south-east corners respectively. The climate of the place is temperate.

The school is only a single storeyed building facing west. It is provided with verandahs on the east and west sides only. There is vacant ground 9 ft. in breadth around the building. The front of it is provided with a teak wood fence.

Two classes are located in the big hall and two more classes in the other two rooms. In the gangway between the front hall and the small rooms two other classes are located. The walls of the gangway which leads to the back of the building from the front hall are provided with wall blackboards for drawing purposes.

GOVERNMENT GIRLS' VERNACULAR LOWER SECONDARY SCHOOL,
VILLUPURAM, MADRAS.



CONVENT SCHOOL OF THE DAUGHTERS OF THE CROSS, BANDRA, BOMBAY.

St. Joseph's Convent, Bandra.

The Daughters of the Cross first came to Bandra on the 11th June 1864, when the women and children of St. Vincent's Home, Bombay, were transferred thither. In the year 1869 the school became an 'Aided School'.

There are no particular architectural points about the many buildings comprising the convent. They are all chiefly of brick and lime masonry with teak wood flooring. The area of the compound in which the convent stands is 19,362 sq. yds.

At the end of 1874, it was thought advisable to separate St. Vincent's Home and the foundlings from the school and the orphanage. They were first transferred to a house on Bandra Hill, and later on, to Bombay. In the year 1877, a piece of land was bought for the erection of a new convent, and on the 23rd April the foundations of the present building were laid. The work proceeded so rapidly that on June 16th of the following year, the new St. Joseph's Convent was solemnly blessed by His Lordship, Dr. Meurin, S.J., Bishop of Bombay. Since then many additions and improvements have been made, the most important of all being the erection of a beautiful chapel completed in June 1901.

The convent is composed of numerous small buildings some being one storeyed and others two and three storeyed. The upper storey with the exception of one or two rooms is used solely as dormitories. All the rooms are surrounded by wide verandahs. There are numerous class rooms and store rooms. There is an infirmary, a double storeyed building, which is situated at a little distance from the main building. This infirmary is divided into two divisions; each consisting of 12 beds. One division is for Europeans and Eurasians and the other for children of the orphanage and there is a small dispensary attached. In spite of the amount of sickness outside the convent the little infirmary is generally empty. A small bakery was erected about two years ago (1907) to endeavour to reduce the heavy expenses incurred for bread and it has proved a great boon to the convent. There is also a little dairy which supplies the convent with fresh milk and butter and that is mainly responsible for the good health of the convent.

Banagaria Santhal Girls' Boarding School.

The entire enclosure is called "The Girls' Compound", and was commenced in 1886 and completed in 1888 at a total cost of about Rs. 22,500. All the walls are of burnt bricks in mortar and covered with lime plaster. The floors are of concrete, but only those of the Christmas house and cloth godown are faced with Portland cement, the rest having two inches depth of earth hammered down on the concrete and smoothed off with cowdung, in native fashion, to admit of easy weekly repairs and cleaning, and to afford the girls practice in what will ultimately be a necessary domestic art when they have homes of their own. All the buildings have sloping roofs of tiles cemented over, but as this in course of time has cracked and leaked in places, a covering of corrugated iron has been superimposed later on.

The cook room has a corrugated iron roof, and the verandah in front of it, called the "eating hall" is thatched with a corrugated iron covering. The five store rooms in a line with these and immediately adjoining are roofed in with slates cemented together and covered with corrugated iron, while the three rooms for fowls and ducks on the south wall have a roof of corrugated iron only. The pillars of the "eating hall" are single railway rails, and those of the other verandahs are of double rails. The wood work of all the roofs is of seasoned teak, as also the doors, windows and door frames, while all the foundations are of stone rubble.

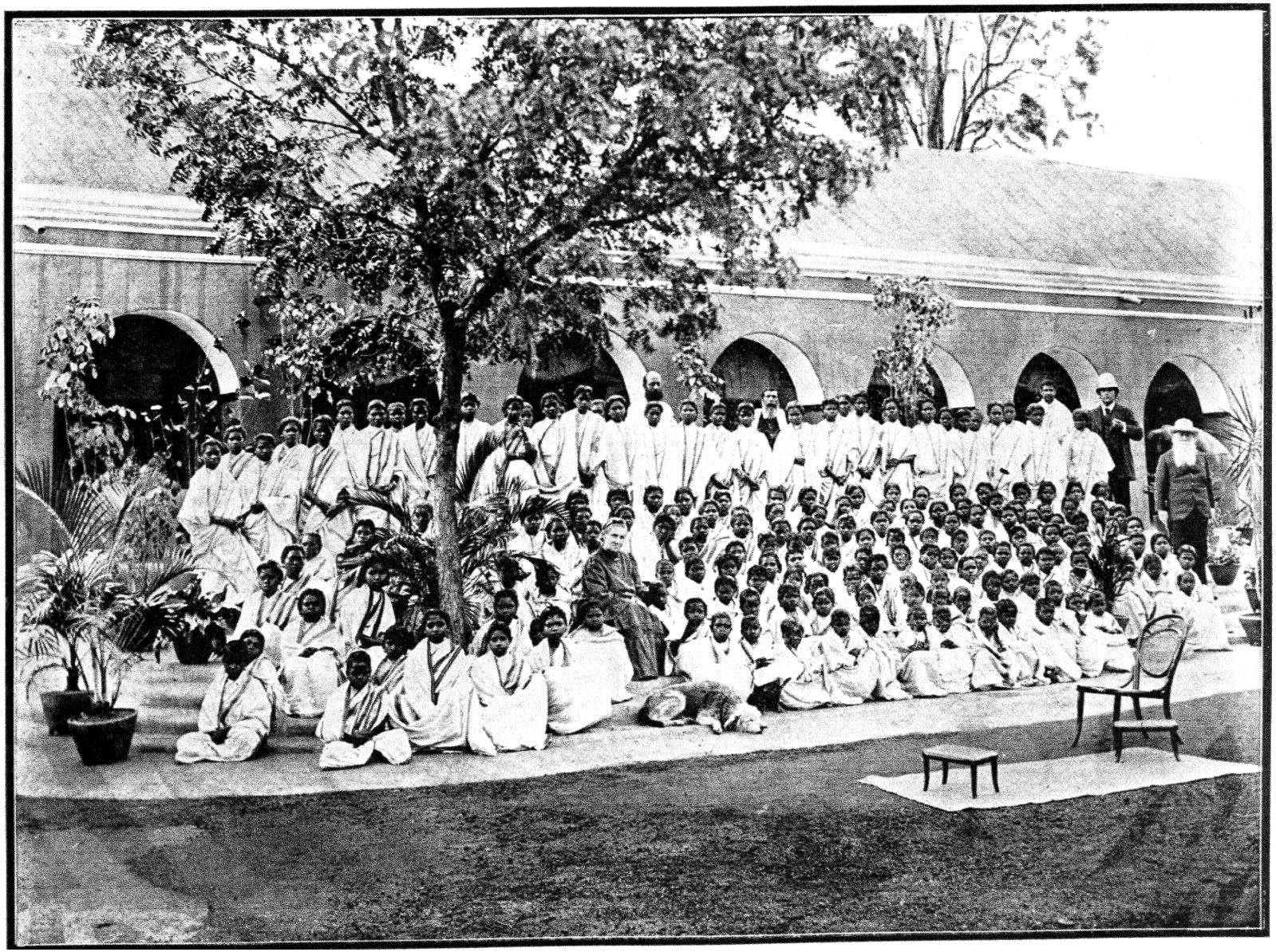
Coming now to the various divisions and compartments, the outside north verandah to the east of the entrance to the compound is used as kitchen, and that on the west of the entrance, as a workshop for carpenters, etc. On passing through the entrance and proceeding to the left or eastwards the first room is a godown for boys; the room adjoining to the east and of the same dimensions was used as a store room for rice temporarily when the plan was drawn up, but it is now generally utilised as a place in which to segregate infectious cases, the openings of the arches and between the pillars being closed at will by letting down purdahs of canvas in the dry months or of tarpaulin in the rainy season. The verandah in front of these two rooms is given up to the use of the sick when there are any, and the sewing class is then removed elsewhere.

The room marked in the plan as the segregation hospital is also used when necessary for infectious cases, and the two adjacent rooms are godowns for the storage of firewood and lamp oil, respectively. The remainder of this section up to the cloth godown is a verandah 73 ft. long by about 13 ft. wide, in which the husking of paddy by *dhenkies* is done by the girls themselves. Then comes the cloth godown, in which all the cloth used by both boys and girls in the boarding school is stored. Then we come to the large school house measuring 62 ft. long by 30½ ft. wide by 26 ft. high in the centre, with three doors in the north, three in the south and six in the west side, while on the east side there are four large iron barred windows. It was found in practice to be more convenient to hold the classes elsewhere, and this house is used for large gatherings at Christmas and hence is usually designated the "Christmas house."

To the south of this "Christmas house" we find the kitchen and "eating hall", and then five store rooms for the storing of soaked and dried paddy preparatory to being husked, different kinds of pulse, etc.

Coming now to the south wall of the enclosure and proceeding westwards, we find first the three little rooms for housing poultry. Then we reach the *pucka* walled-in but roofless latrine with cemented floor, so arranged that liquids run off by pipes and subterranean masonry drains to a masonry well about 50 ft. deep by 30 ft. in diameter, roofed in with corrugated iron, some distance away to the south, and solids are removed in buckets by hand to the same receptacle. Quick lime is thrown into this twice a month, and provision is made for the draining off of surplus water in the rains to a lower level.

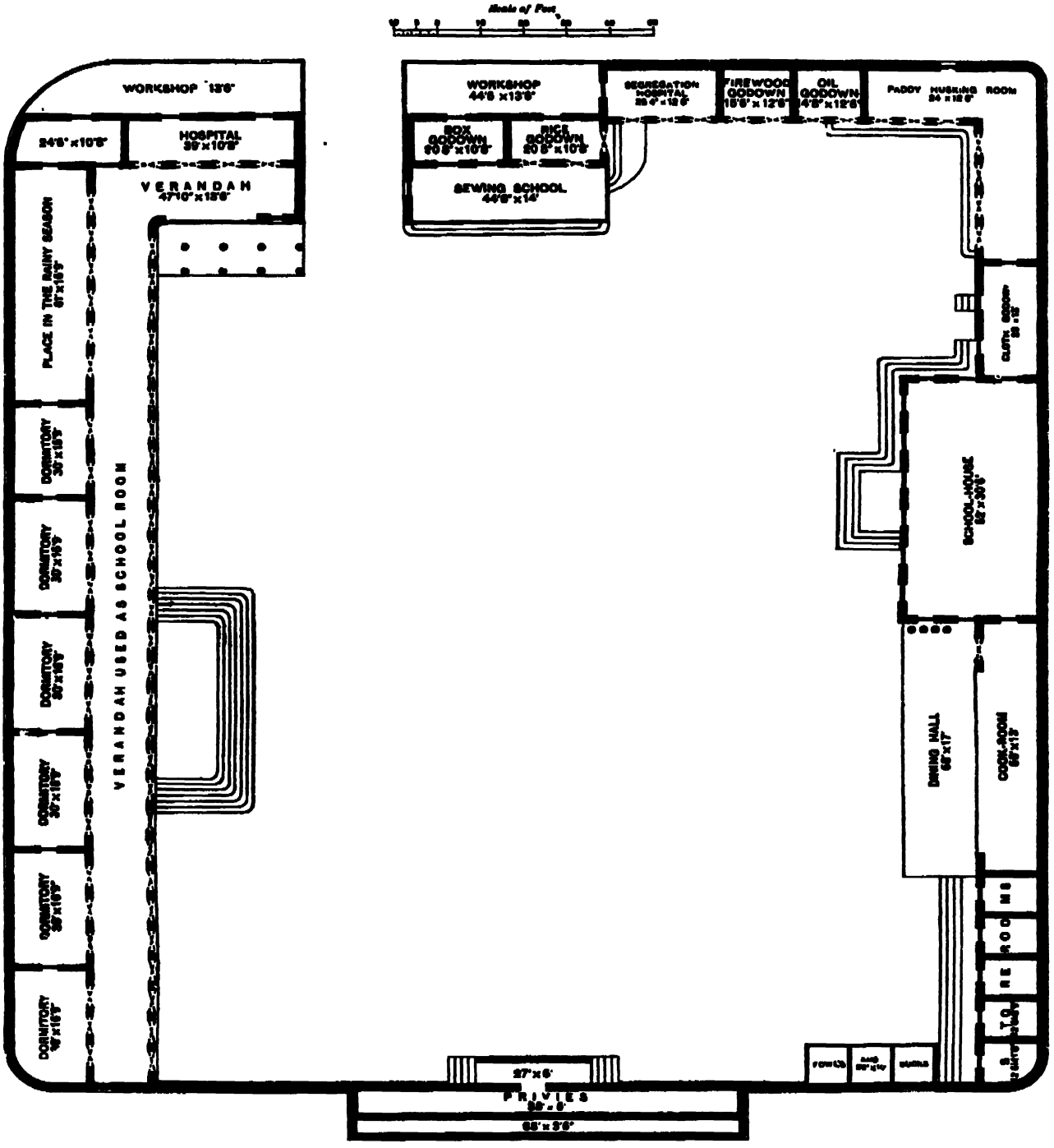
Proceeding on to the west side of the enclosure, we come to five large rooms each measuring 30 ft. by 16¾ ft., one of 24 ft. by 16¾ ft. and one of 61 ft. by 16¾ ft., all of them measuring



BANAGARIA SANTAL GIRLS' BOARDING SCHOOL, BENGAL.

ડા૦ પ્રેમનારાયણ ટંડન

BANAGARIA SANTAL GIRLS' BOARDING SCHOOL, BENGAL.



18 ft. high at the apex. In all these rooms but the last named the girls live in the daytime and sleep at night. In the largest room convalescents remain, and sick ones in the room marked "hospital", measuring 39 ft. by 10¾ ft. by 18 ft. high at the apex, the verandahs in front being also at their disposal. The only room left unnamed is a godown in the north-west corner of the enclosure for storing miscellaneous food stuffs.

Running the whole length of the western range of rooms is a verandah measuring 244 ft. long by 12¼ ft. wide in which the classes are held. The pupils sit on mats facing westwards and their teachers on stools facing eastwards. The present number of pupils taught here is 95, but in previous years there have been 250, which is about as many as can be comfortably accommodated consistently with hygienic considerations. In this whole western range there are no doors, but a double row of arches measuring 8 to 9 ft. high by 6 ft. wide, all provided with purdahs of stout sackcloth that can be raised or lowered at will. It may be added that all the girls sleep on mats with pillows and sheets on the floor when well, and *charpoys* are only used by the sick.

The quadrangle enclosed by the above buildings measures 254 ft. by 184 ft. or an area of 46,736 sq. ft. with a gentle slope from north to south, in which the children have their drill and kindergarten classes as well as play. In this quadrangle are 30 neem and a few mango and cork trees.

The circular marks south of the hospital verandah indicate a *gola* or granary with concrete cemented floor, the usual split bamboo earth-bedaubed wall and thatched roof, in which boiled paddy is stored prior to being husked.

The small low building to the south of the sewing class verandah and measuring inside 30¾ ft. by 13½ ft. is where goats are kept at night, and has masonry walls and a corrugated iron roof. Under and around the wide eaves and extension verandah projecting to the south are some 3 dozen earthen *patuas* or tubs in which paddy is soaked prior to being boiled. The cooking of the daily food is also generally carried on under these eaves and verandah as being more open and airy and consequently cooler than in the kitchen. South of this building is a masonry reservoir with steps leading down to it and protected by a corrugated iron roof, from which all water for domestic purposes is drawn; it is fed by water lifted from two large tanks adjoining the Mission compound and conveyed by a masonry drain mostly underground.

To the west of this at the opposite corner of the compound is a pit encircled with a wattle fence into which all the rubbish and dry sweepings of the enclosure are thrown and ultimately removed to the fields to serve as a fertilizer. The sides are smeared with mud and cowdung to make them smooth, the bottom is of stone and a flight of stone steps from the ground level leads to the bottom.

This school has grown up to its present size and state from a very small beginning, about forty two years ago, founded and carried on to the present day by Mrs. C. Boerresen.

The school is primarily intended for Santhal girls; but others also have found education here, specially girls of the Mahle tribe, an aboriginal people closely related to the Santhals.

The premises form part of the Ebenezer Mission station, the headquarters of the Indian Home Mission to the Santhals, situated within the boundaries of the village Banagaria in the south-eastern corner of the Santhal Parganas.

In common with the whole neighbourhood the place has a healthy climate, the soil being dry and stony and naturally well drained; the station is built on an elevated part of the country.

Partap Singh Hindu Girls' School, Moradabad.

The foundation stone of the Partap Singh Hindu Girls' School was laid by Mr. Winter, Collector and Magistrate of Moradabad, on the 3rd May 1905, and the building was completed in November 1905.

The school is situated in the city of Moradabad on an irregular site about 1½ acre in extent which was presented by Kumar Shiva Nath Singh, Barrister-at-law, of Tajpur. The school building itself occupies the south-west corner of the site, while the boarding house and lady superintendent's quarters, which are now under construction, occupy the west and north sides.

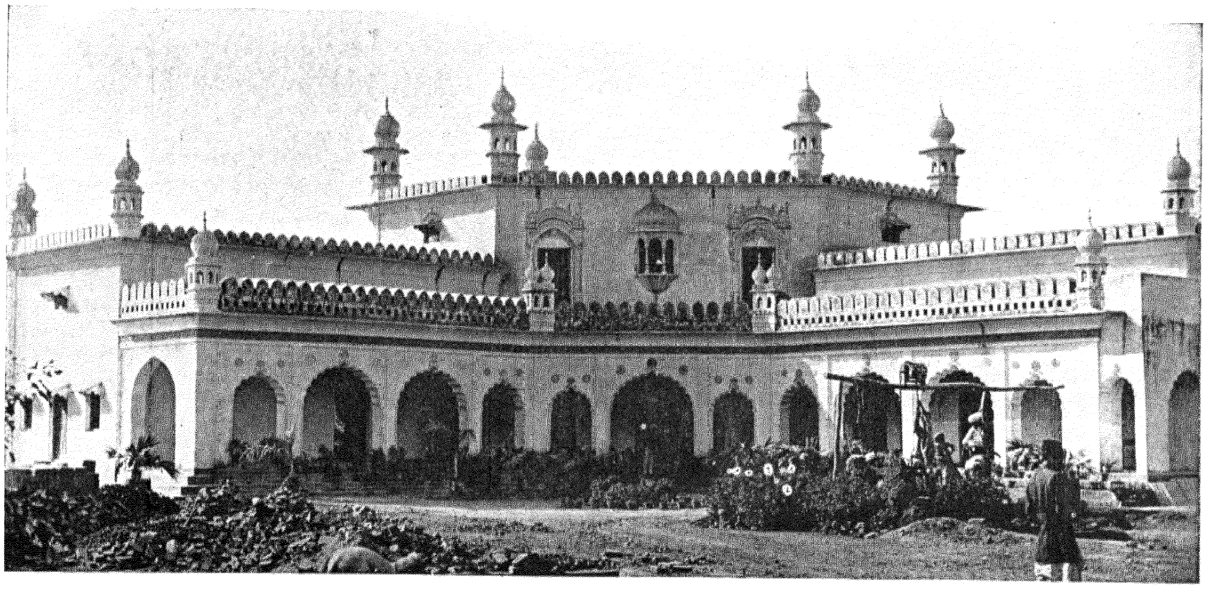
These buildings had to be designed to fit into the site and leave as much ground in front as possible to be utilised as a garden and lawn. The school itself is a single storeyed building standing on a plinth 3 ft. high with a verandah 12 ft. wide in front. It has a lecture hall 30 ft. by 29 ft. by 26½ ft. high with a gallery all round approached by steps outside the building over the verandah roof. This gallery is principally meant for "Pardah-nashin" ladies who can get to it from a door on the outside and is provided with an ornamental iron screen all round. There are besides these, class rooms, respectively 40 ft. by 20 ft., 23½ ft. by 20 ft. and 14½ by 20 ft. with store rooms attached.

The school at present teaches up to the upper primary standard. There are 111 scholars on the rolls, and as soon as all the buildings are completed it is expected that a large increase in the attendance will take place.

The lady superintendent's quarters were designed to suit an occupant living in either the English or native style. It has been placed against the public road on the north to enable visitors to the school to be received by her before being admitted into the school. An enclosure wall divides off her quarters from the school and boarding house. The building stands on a plinth 2 ft. high and consists of a porch 16 ft. by 15 ft., verandah 7 ft. wide on the east and south, drawing room, two bed rooms, bath rooms and latrine. A cook house and two godowns as well as a room for a servant are attached to the building. The outoffices consisting of stable, coach house and syce's rooms are quite separate and are approached from the road by a gate. The boarding house is a two storeyed building standing on a plinth 3 ft. high, irregular in shape with an inner enclosure, designed so as to take up all the ground available, which is very limited on account of the existence of a mosque on the north and a temple on the south. The rooms on the south and east are arranged in two storeys with a verandah 8 ft. wide above and below. The west and north sides of the building are single storeyed. An enclosure has been left in the centre which will be converted into a grass lawn. The lower storey rooms are 14 ft. high and the upper storey rooms, which can be used as dormitories, 12 ft. high, both ventilated by upper and lower windows wherever these could be got in without interfering with the purdah system. The outer walls of the single storey rooms are raised so as to act as a screen from the surrounding buildings. The single storey portion consists of a reading room 20⅜ by 18 ft. with a side room 18½ by 10½, having a verandah 8 ft. wide in front. There is a godown underneath the stairs and two servants' rooms on the north side of the enclosure. The cook house, bathing room, and latrine have been fitted into the space available on the north side, and are separated from the boarding house by an open passage 5 ft. wide. The boarding house is intended to accommodate 96 boarders. This number it is expected will be sufficient for present requirements. The boundary wall on the east side is 16 ft. high to prevent the school enclosure being overlooked by the surrounding buildings.

The cost of the building.

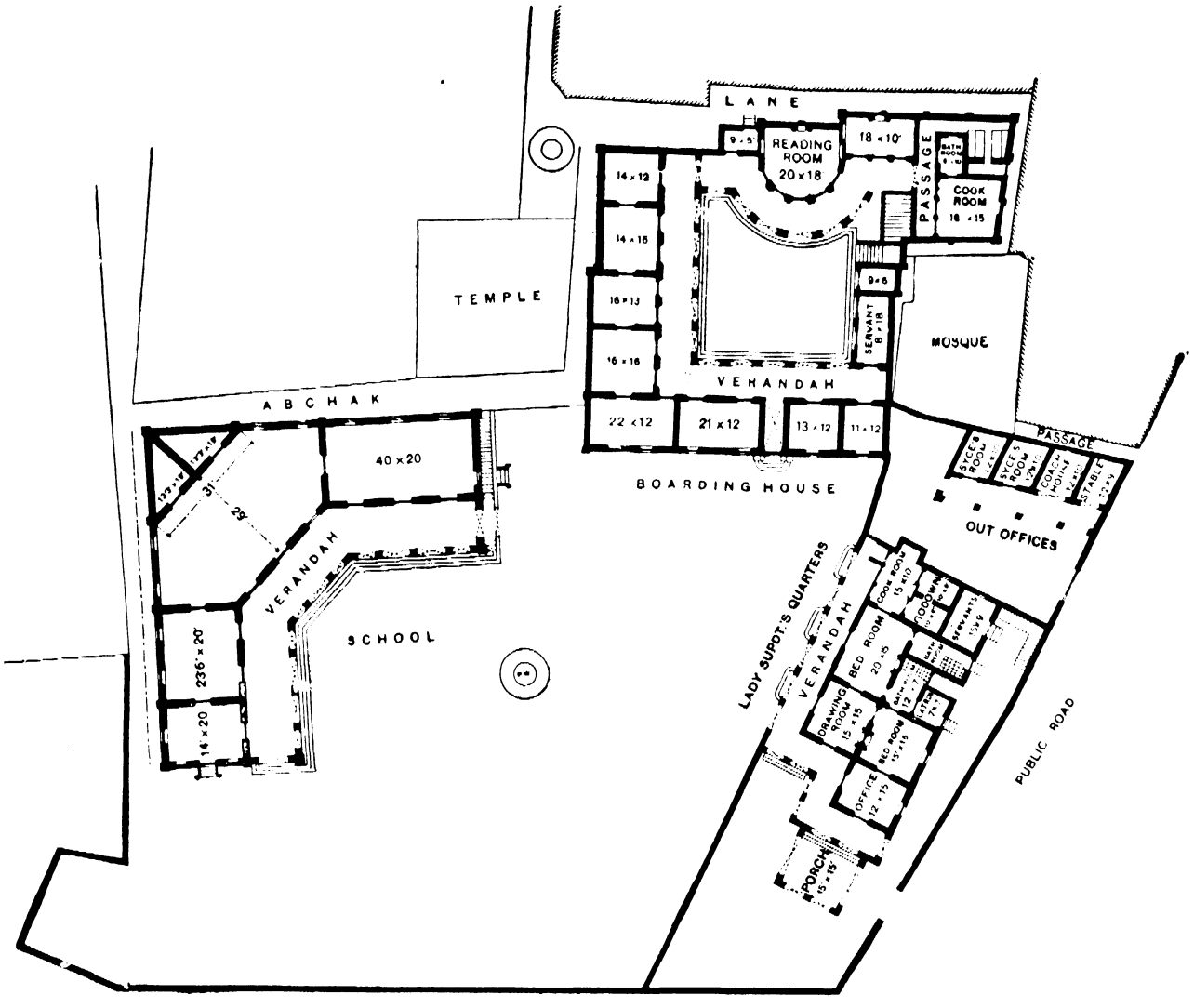
	Rs.		
School proper	24,000	2—11	4—31
Lady superintendent's quarters . . .	8,419	2—53	2—43
Stables	1,764	2—42	1—72
Boarding house	27,564	2—89	4—55

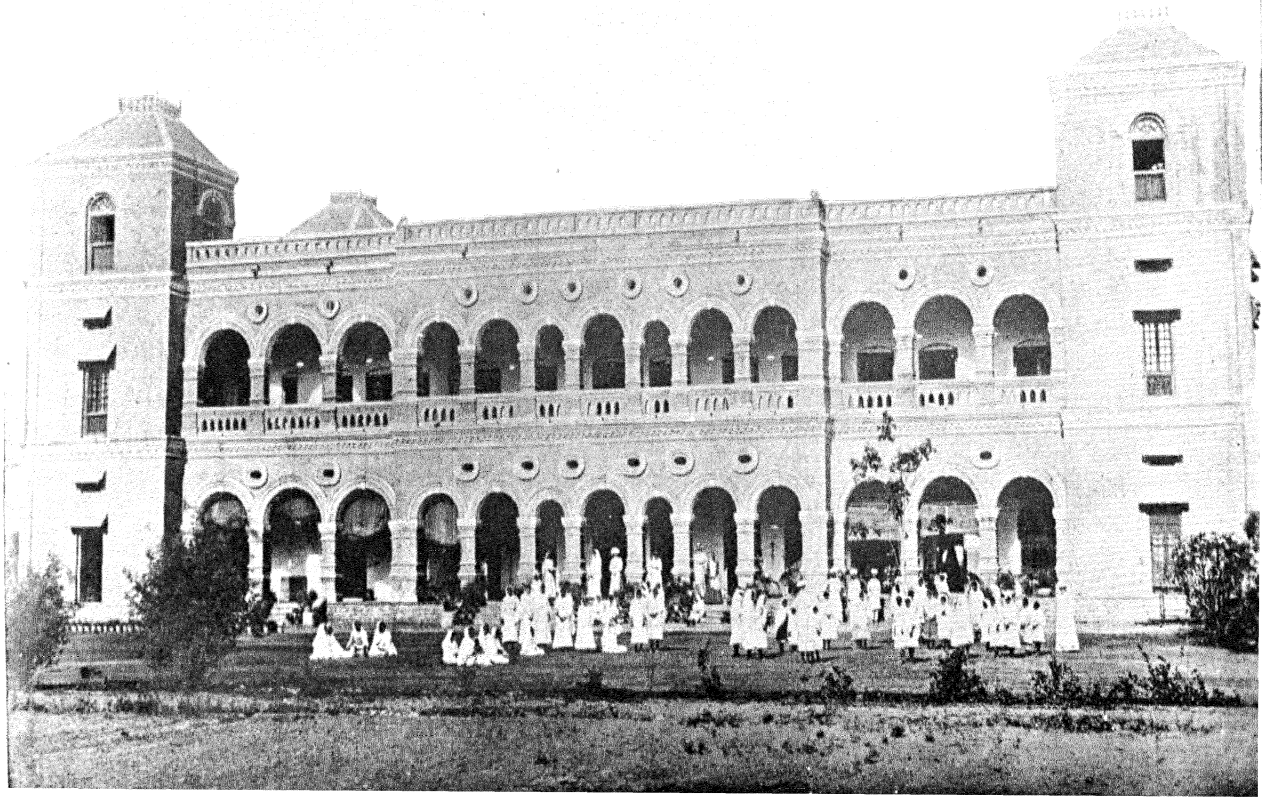


PARTAP SINGH HINDU GIRLS' SCHOOL, MORADABAD.

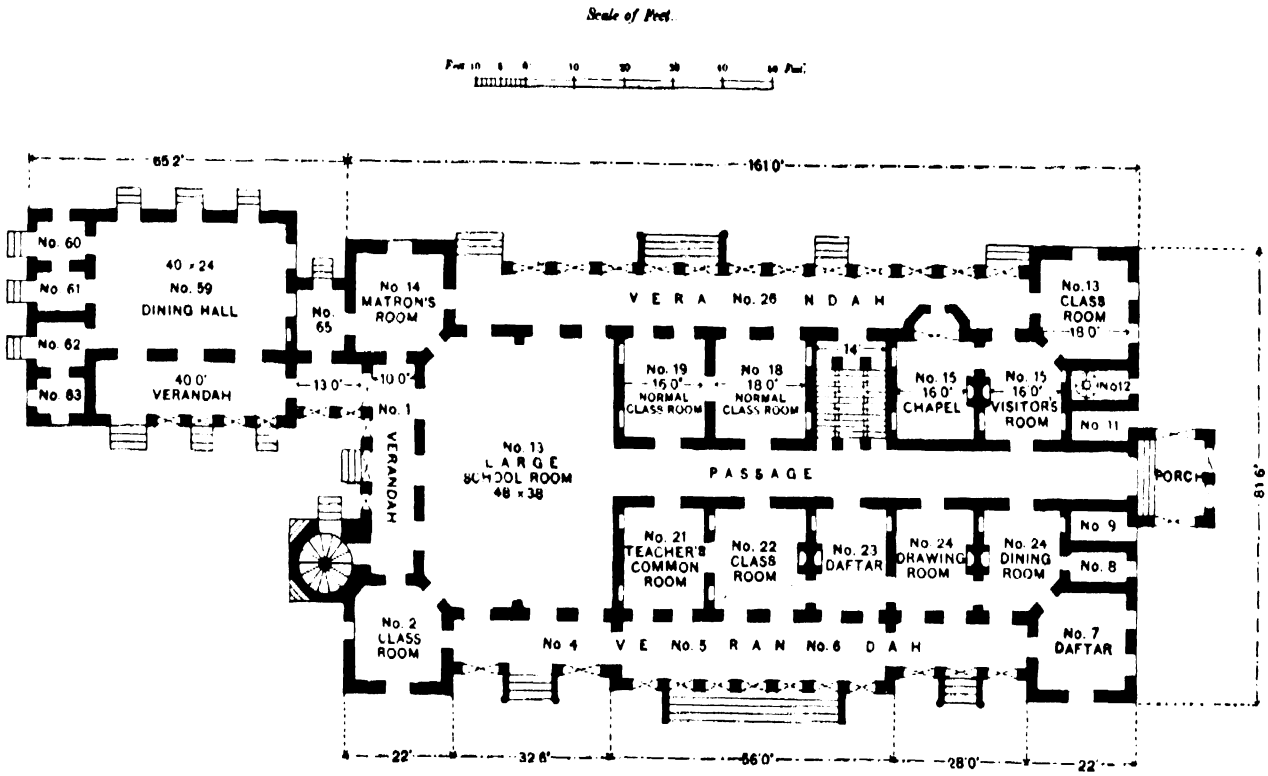
Scale of Feet.

Feet 20 10 0 20 40 60 *Feet.*





QUEEN VICTORIA GIRLS' HIGH SCHOOL, AGRA.



GROUND PLAN OF FIRST FLOOR

C. M. S. Queen Victoria High School, Agra.

The foundation stone of the Queen Victoria High School was laid in March 1902 by Lady Digges LaTouche and the building was opened in July 1904, when the move was made from the inconvenient hired house where the school had been carried on since 1893.

Grants towards the building were made by the Church Missionary Society and by Government, but a large proportion of the sum needed was raised by generous donations from English and Indian friends. All the furniture of the school has been provided by private subscriptions.

The building is two storeyed with wide verandahs on either side; the double line of rooms running from north to south is separated by a broad passage allowing a free current of air through the centre of the building. All the rooms in the school are lofty and well ventilated, especially those at each angle of the building. In addition to the rooms of the two storeys, there are four tower-rooms on the roof. The roof, measuring 152 ft. by 73 ft., affords a delightful recreation ground, particularly in the rainy season when the playground is not suitable for games. The panorama from the roof is magnificent, commanding a view of the Taj Mahal, the Fort, Akbar's Tomb and the City of Agra.

The building provides ample accommodation for 74 boarders, 15 day scholars, and the requisite staff of residential teachers. The quarters of the English ladies are under the same roof, so that they may be able to give constant supervision and be with the girls as much as possible.

The Director of Public Instruction wrote in the school log book: "The new buildings are admirably adapted for their purpose."

Educational course.—The Government curriculum is followed throughout the school. Students are prepared for both the English and Vernacular Teachers' Examinations, as well as for Matriculation and the Middle Examination.

Domestic arts.—Girls are taught to cut out, make and mend their own clothes, to dust their rooms and keep them tidy, to be proficient in Indian cooking and to be useful in home life.

St. Joseph's Burmese Girls' Orphanage, Mandalay (Vernacular Department).

This institution is located in a building specially built for it at a cost of Rs. 50,000. Of this amount the Government of Burma gave a building grant of Rs. 17,000 and the remaining Rs. 32,000 was provided by the Roman Catholic Mission of Upper Burma. The foundations were laid in 1898; the building was completed and the school transferred to it in July 1901. The compound belongs to the Roman Catholic Mission. It is of a square form, with a brick wall enclosure and comprises an area of about 2½ acres. It is situated in the central part of the town and is surrounded on all sides by private houses.

The orphanage is a two storeyed building facing the south, with two wings prolonged towards the north. The centre part is 100 ft. long and 25 ft wide; each wing 90 ft. long and 25 ft. wide. Both storeys have verandahs all round except at the north end of each wing; these verandahs are 9 ft. wide and are supported on the outside by pyingado posts, 6 in. square.

The centre part of the lower storey is divided into three rooms; the middle one 18 ft. by 25 ft. forms the parlour, a corner of which is occupied by a staircase. The room towards the right side is 41 ft. by 25 ft., and is divided in two by a movable partition, one part being occupied by a class and the other used for the needlework. On the left side the whole room, 41 ft. by 25 ft., is occupied by two classes.

The west wing forms a long hall, 90 ft. by 25 ft., without partitions and occupied by five classes.

The east wing 90 ft. by 25 ft. forms also a single hall but is divided into four parts with movable partitions. These are private rooms for two Sisters and vestiaries for the orphans.

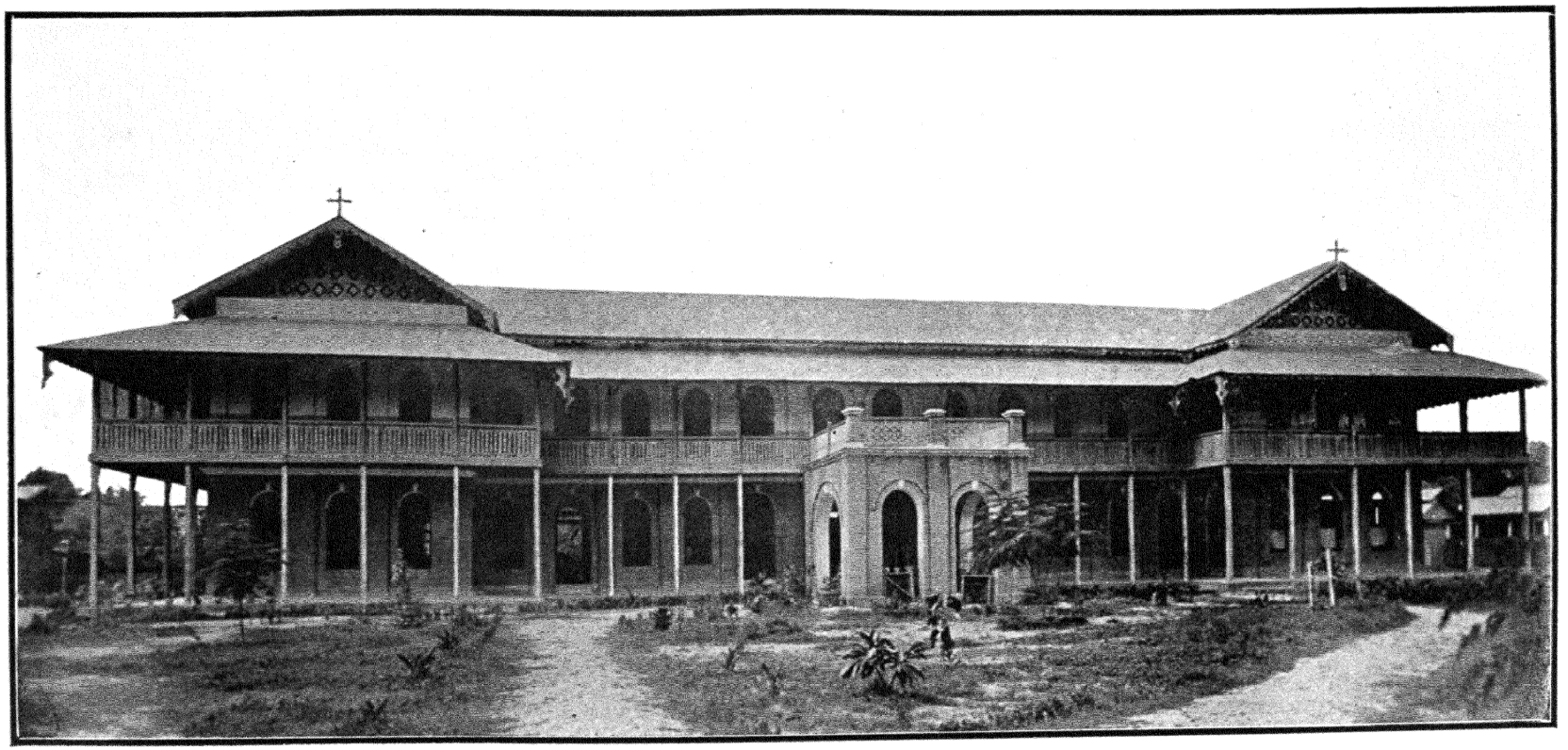
In the upper storey the whole building forms two large dormitories separated only in the middle by a small room, 18 ft. by 25 ft., just above the parlour at the centre where is the staircase.

The walls, 18 in. thick, are all made of brick. The wood work including the upper storey floor and ceiling is of teak wood. The whole building is covered with corrugated iron.

Large ventilators over all the doors and windows and also upstairs below the ceiling, admit plenty of air to the whole building.

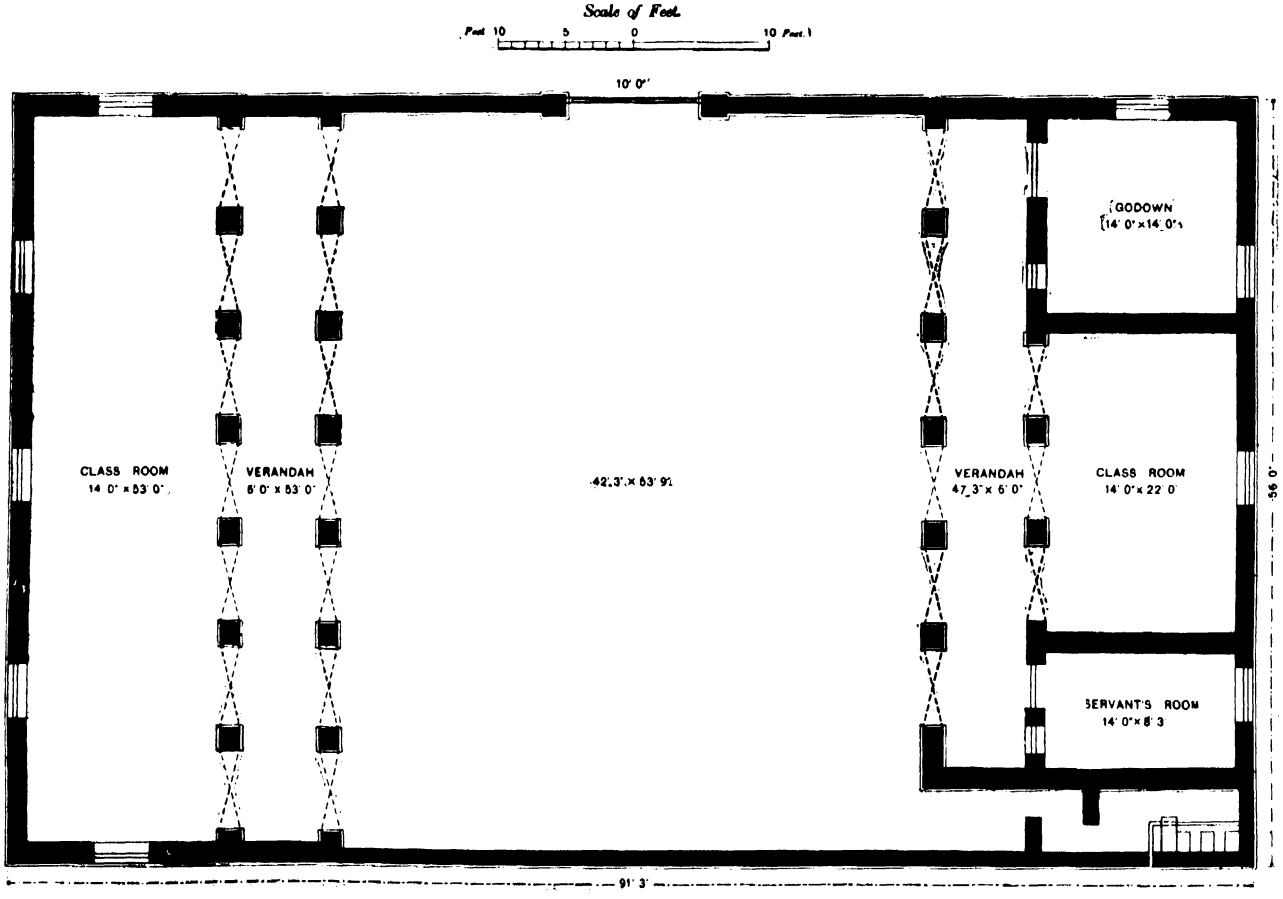
The lower floor is paved with Upper Burma flat stone, 1 ft. 6 in. square. The height of the wall from floor to floor is 13 ft. and from the upper floor to the ceiling 17 ft.

There is also a separate building, single storeyed with zinc roof, 126 ft. long and 22 ft. large, comprising the kitchen, store room, refectory and weaving room.



ST. JOSEPH'S ORPHANAGE, VERNACULAR DEPARTMENT, MANDALAY.

GIRLS' SCHOOL, DAMOH, CENTRAL PROVINCES.



Government Girls' School, Damoh.

This building was constructed in the year 1905-1906 by the Public Works Department and is situated to the north-east of the city police station on a by-road in the heart of the town and is surrounded by town-houses on all sides.

Damoh town is the headquarter town of the district, and is situated at 20° 50′ north long. and 79° 27′ east lat. Damoh is a station on the Bina-Kutni Branch of the Great Indian Peninsula Railway, 702 miles from Bombay and 712 miles from Calcutta by rail. The population in 1901 was 13,355. It is the 15th town in the Central Provinces in size, and is increasing in importance. It stands 1,236 ft. above sea level below some stony hills which radiate heat in the hot weather, thus increasing the temperature, which, but for this, would be very moderate.

The rainfall averages 46·44 inches.

The building has a plinth 2 ft. high and is a rectangular area 88½ ft. long, east to west, and 56½ ft. broad, north to south, with two blocks of single storeyed rooms along the eastern and western sides.

The masonry is of second class bricks in lime and the plan is that sanctioned for girls' schools.

The class rooms in both blocks are 14 ft. wide, with walls 1½ wide, and there is a verandah 7½ ft. wide in front. The height of the rooms is 11¼ ft. The floor is flagged, and the gable roof is of single Allahabad tiles. The verandah roof is 3 ft. below the main roof, and is supported at the ends on stone corbels projecting from the main walls of the rooms, while the other or lower ends are supported on a 5 in. thick bressummer carried on masonry pillars (1½ by 1½ ft.) a foot apart from each other and a foot in height. The class rooms are open on one side, while there are walls on three sides having clerestory windows, measuring 3 ft. by 2 ft. Thus the building and class rooms are well lighted and ventilated.

The eastern block contains a single class room facing west 53 ft. long, 14 ft. wide and 14¼ ft. high. There are seven semi-circular arched openings, each 6 ft. wide and 8½ ft. high. There are five glazed clerestory windows, three in the back main wall and one in each of the side walls. They are protected by ½ in. mesh wire netting fixed in iron frames in such a way as to allow free opening of the shutters. In the front wall, above the verandah roof, there are three other small clerestory windows measuring 2 by 1 ft. provided with 3 in. mesh expanded metal fixed in wooden frames. The verandah openings between the masonry pillars are provided with 3 in. mesh expanded metal set in wooden frames. The central frames have a door 4 ft. by 6 ft. of the same material.

The western block consists of an open class room in the middle and two closed rooms, one on each side, to form godowns. The total length of the rooms in this row is not the same as that in the eastern row but is 4¾ ft. less, leaving a space at the northern end enclosed by the compound wall. This open space is 4 ft. 9 in. wide and of a length equal to the full width of the western row, and provides a masonry latrine for the use of girls during school hours. The class room o this block is 22 ft. long and 14 ft. wide. The room to the south of the class room is 14 ft. square, while the one to the north is 14 ft. by 8¼ ft.

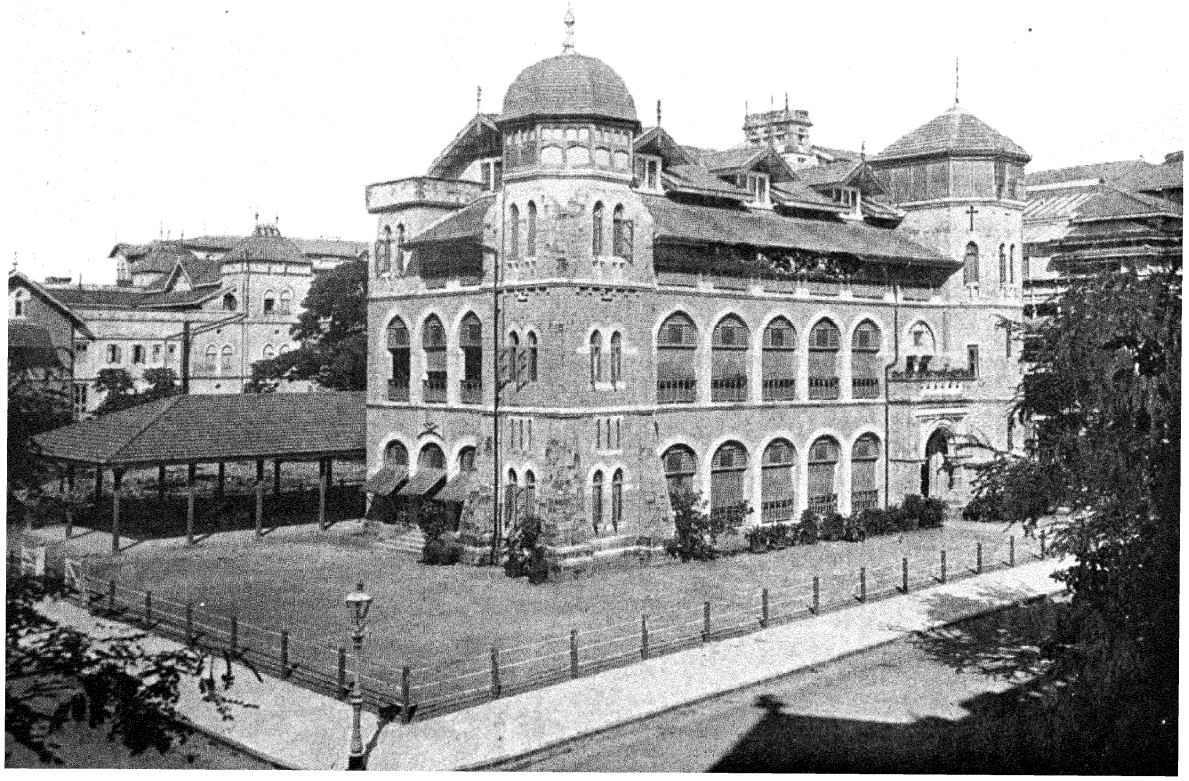
All the clerestory windows in the outer main walls have glazed shutters protected with ½ in. mesh wire netting set in iron frames. The southern extremities of the two rows are joined by a compound wall forming the southern boundary of the block and thus enclosing a small compound. This space is used as a playground and is 53½ ft. long, north and south, and 39 ft. wide, east and west. The main gate is 10 ft. wide and is situated in the centre of the southern compound wall which is 6¾ ft. high. The gate pillars are 9½ ft. high and the gate consists of a pair of shutters of galvanized iron sheets fixed in the inner side of wooden frames which swing on iron hinges. The compound walls being of sufficient height the building is fully on the "purdah system."

The cost of the school building to Government up to date is Rs. 5,333.
There are 80 girls on the rolls classified as below :—

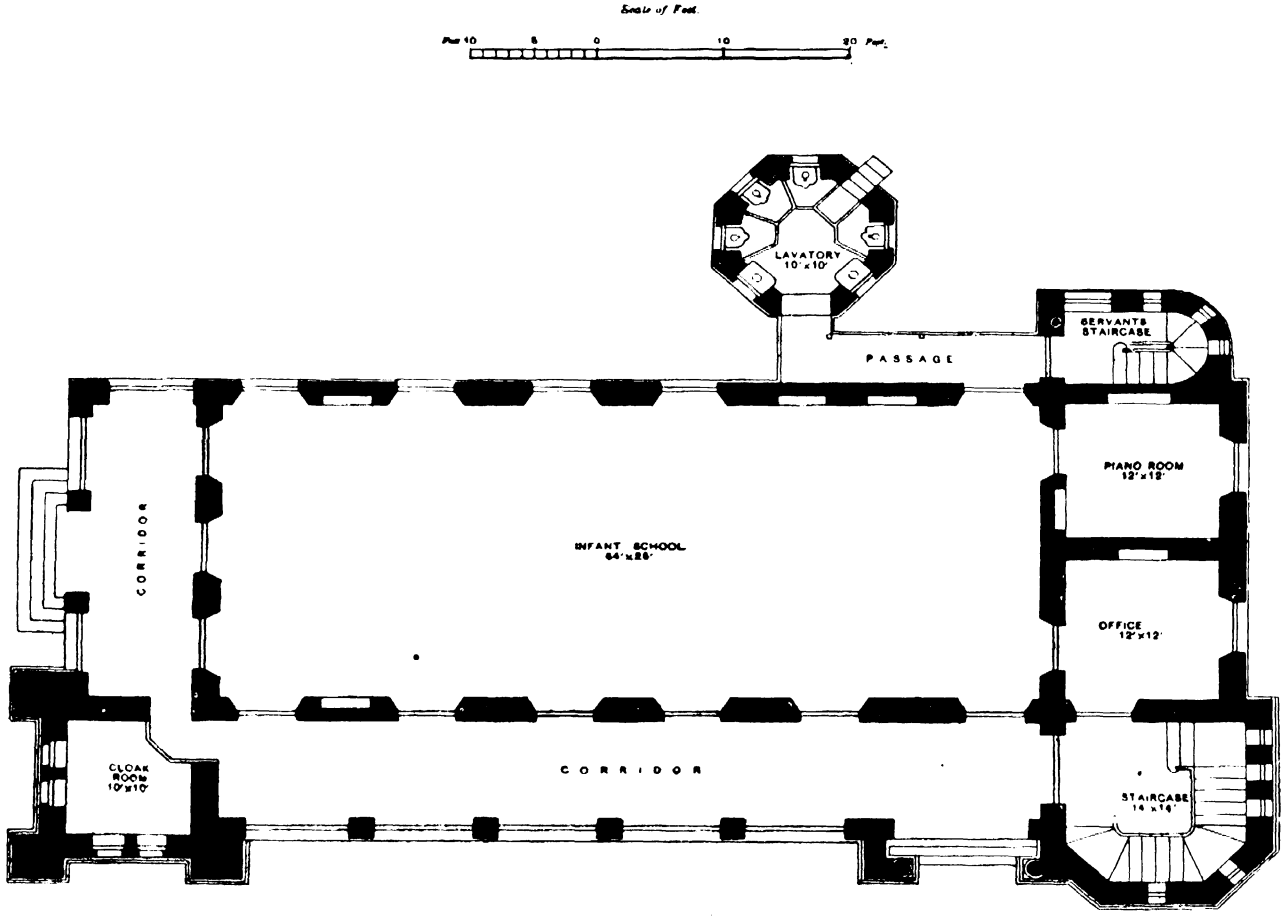
Classes.	Infant.	I.	II.	III.	IV.
Pupils	38	23	6	7	6

Classes I and II sit in the class room in the western row and the remaining classes in the class room in the eastern row. Girls sit on strips of *tat-patties* with their backs towards the walls. There are three teachers :—one head mistress on Rs. 10, one assistant mistress on Rs. 8, and one monitress on Rs. 5.

SCHOOLS FOR EUROPEANS



CATHEDRAL GIRLS' HIGH SCHOOL, BOMBAY.



The Cathedral High School for Girls, Bombay.

The Cathedral High School for Girls stands in Napier Road on the Esplanade, Bombay. It used formerly to be in Homji Street, Elphinstone Circle, but the present building which was designed by Mr. John Adams was occupied on August 20th, 1900. There are two large school rooms on the ground and first floors, each 66 ft. by 27 ft., and another on the second floor, 44 by 27 ft.

These have spacious verandahs, cloak rooms and offices attached to them. There is a large play-shed in the compound with badminton court.

St. Joseph's College, North Point, Darjeeling.

"A most imposing stone building, large, handsome and occupying a commanding position on the crest of the Darjeeling spur, in full view of the Snowy Range, and the stupendous and awe-inspiring height of Kinchunjunga." In these words as far back as 1893 the London *Times*, in a leading article on Anglo-Indian education, made mention of the then newly-erected St. Joseph's College, and the writer concluded his article by blaming "English parents in India who deny themselves the alleviations and comforts necessary to maintain their own health, in order that they may save enough out of their diminishing salaries to send their children to schools in England where an inferior class of instruction is given at a much higher cost."

At the age of 65, broken in health from his long and arduous labours in India and South Africa, Father Henry Depelchin, S.J., volunteered to come back once more to India, where he had already opened the two well-known educational institutions of St. Xavier's College, Calcutta, and St. Xavier's College, Bombay, in order to erect a college at Darjeeling. In February 1888 he took over charge of the little St. Joseph's School which existed at Sunny Bank and set about at once to look for a site for the new college. The Government of Bengal, through Sir Steuart Bayley, made a free gift of a large plot of ground on the spur which runs due north from Birch Hill, and in three years' time Brother Rotsaert, S.J., erected the magnificent pile of buildings at a cost of somewhat over three lakhs. On February the 18th, 1892, the first party of boarders arrived, and on the following day His Excellency the Viceroy, Lord Lansdowne, did the new college the much appreciated honour of a visit.

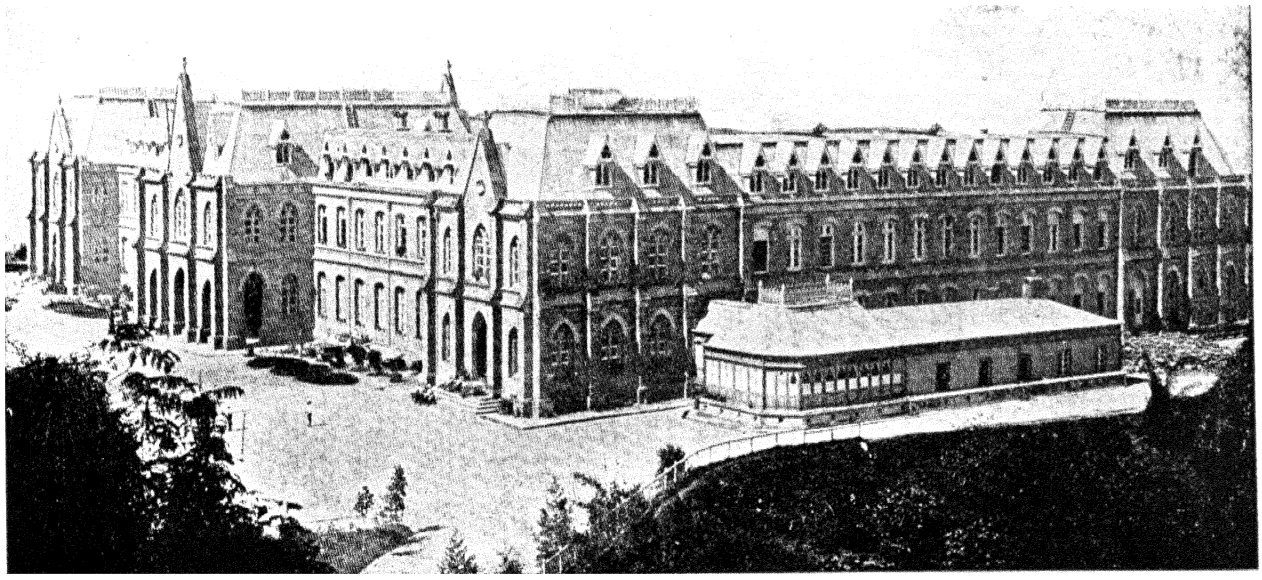
In addition to the site presented by the Government of Bengal, neighbouring plots were acquired and the college grounds at present cover an area of about 17½ acres. The main college building, built entirely of stone on the rocky crest of the hill, seems to be entirely free from all danger of landslip and stood the great earthquake of 1897 without receiving any damage worth mentioning. The building forms very nearly a square block, each side of which is about 300 ft. long, the open quadrangle in the centre being about 180 ft. by 160 ft. The principal façade is to the south and is flanked in the centre by a portico measuring about 40 ft. by 20 ft. This, as well as the east and west wings, is three storeyed, the first and second storeys being each about 18 ft. high and the third about 15 ft. The northern wing is a one storeyed building only surmounted by a low slanting roof. The whole of the front building with the exception of the chapel, a waiting-room and two parlours is occupied by the college staff.

As the pupils boarding in the college are divided into four distinct divisions, it may help to follow this classification in stating the arrangements made in the college for the accommodation of each of these.

I. *The Junior Division.*—This division numbers about 40 boys whose age is below 12. They have their own dining hall (40 ft. by 12 ft.), their own dormitory (50 ft. by 30 ft.,), their own lavatory (50 ft. by 12 ft.), their own dressing room (30 ft. by 30 ft.), their own study room (40 ft. by 30 ft.), and their own playground (about 300 ft. by 120 ft.). All the rooms mentioned here are of the uniform height of 15 ft.

II. *The Middle Division.*—This division numbers generally about 65 boys whose age is between 12 and 15. Their common study room where the preparation work for the classes is done measures 50 ft. by 30 ft. Their lavatory is about 70 ft. by 12 ft., and their dressing room 50 ft. by 30 ft. Their dormitory is about 90 ft. by 30 ft. and is excellently ventilated, there being no less than 11 large windows on each side and a special system of ventilators through the panelling of the ceiling and the roof above it. The playground of this division is to the north of the college buildings and on the same level and measures about 300 ft. by 150 ft.

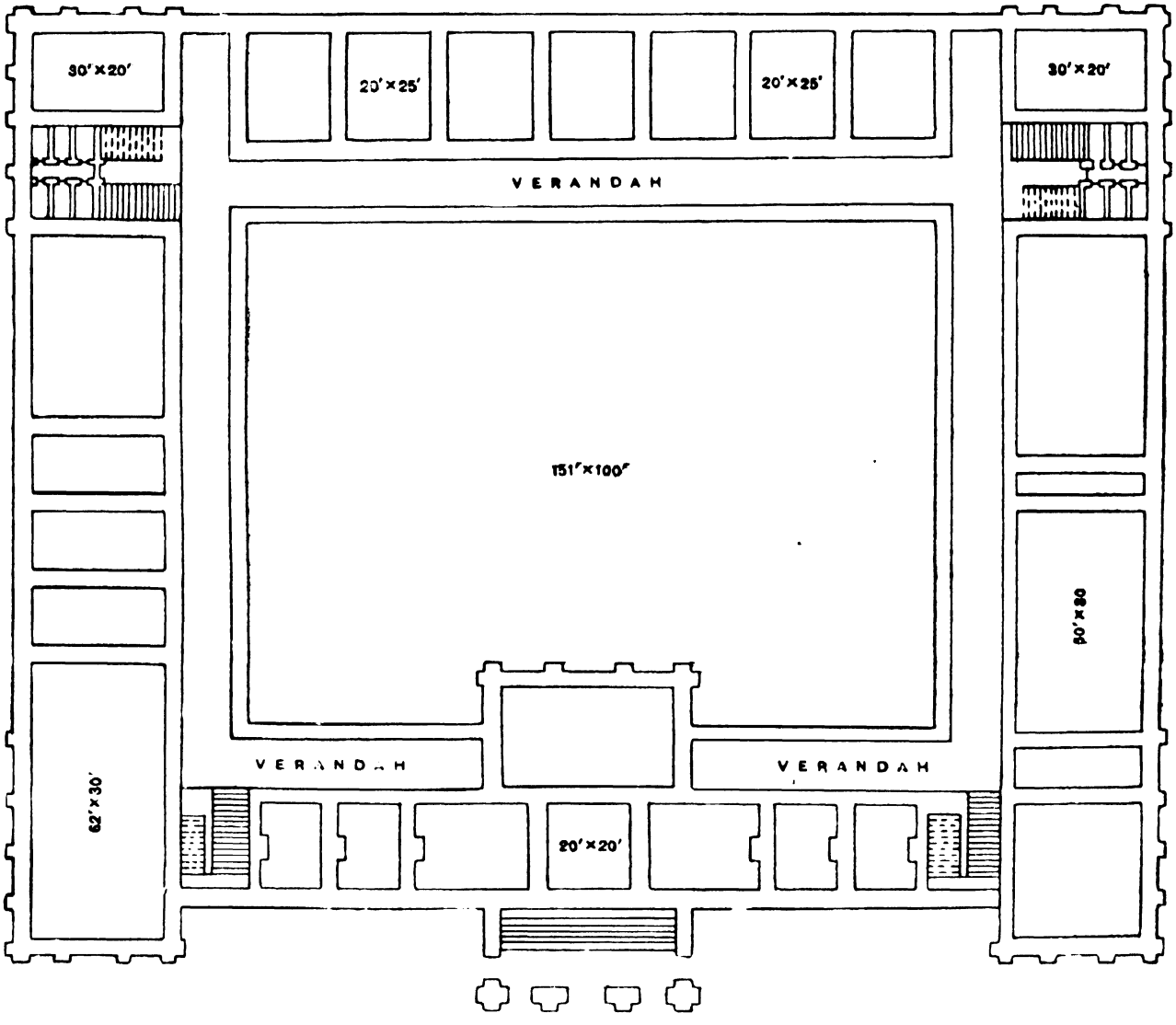
III. *The Senior Division.*—This division numbers on an average from 60 to 65 boys whose age is above 15. Their study room which is on the ground floor in the western wing is of the same dimensions as that of the middle division located on the ground floor of the eastern wing. They



ST. JOSEPH'S SCHOOL, DARJEELING.

Scale—1 Inch = 40 Feet.

GROUND PLAN.



have two well ventilated dormitories, one of which measures 60 ft. by 30 ft. and the other 40 ft. by 30 ft. Between these two dormitories is a large washing and dressing room measuring 65 ft. by 40 ft. Their playground is a large flat space about 100 ft. below the level of the college and measures about 400 ft. by 200 ft.

IV. *The Special Department.*—This department has within the last ten years had an average number of about 20 students preparing for special examinations which give entrance to some of the Government services in India, or studying for examinations for which they intend after a one or two years' course at North Point to proceed to England. Each student of this department has his own special room (13 ft. by 10 ft.) which is both his study and sleeping room. There are 24 rooms of this kind, each having its own window, and the uniform height of each being about 12 ft. The Special Department lecture room measures 40 ft. by 30 ft. and the pupils have a special reading room 30 ft. by 15 ft. They have also the use of a billiard room 30 ft. by 20 ft. containing a full size billiard table, and when the weather does not allow of outdoor sports they have for their recreation a closed verandah on the second floor measuring about 220 ft. by 15 ft.

The middle division, senior division and special department students have a common refectory 50 ft. by 30 ft. A beautiful marble basement runs right round the refectory and the walls are painted in a light yellow hue while a neat leaf and flower border runs right round all the edges and a large sized and highly ornamented vase is painted between each pair of doors and windows. Ten panels 4½ ft. by 2 ft. representing various scenes from animal life and artistic oil paintings, cover the spaces between the doors and windows, while the four seasons of the year set forth in characteristic and suitable scenes and covering 4½ ft. by 4 ft. adorn the four corners; a view of the snowy range as seen from North Point, and a scene from Holy Scripture in the centre of the two opposite walls complete the set. Every North Point boy is proud of his grand college dining hall.

Class rooms.—The boys of the 1st and 2nd Standards occupy a hall 40 ft. by 30 ft. which is both class room and study room for them and where they are at all times with the masters who are in charge of them. The seven remaining standards have each their own class room measuring 25 ft. by 20 ft. The average number of boys in each class room is about 20, and as all the class rooms are 15 ft. high, the capacity of each is 7,500 cubic ft. Each class room has two large windows 9 ft. by 4 ft., and a large double door, 12 ft. by 5 ft., the upper half of the doors being glass.

Music rooms.—There are two music rooms: one 30 ft. by 20 ft. and the other 30 ft. by 15 ft. The college has a band consisting of about 25 playing members and an orchestra numbering about 20 players.

There is a bathing room measuring 30 ft. by 20 ft., and divided into 16 separate bathing cabins with hot and cold water pipes laid on.

There is a natural history museum 30 ft. by 20 ft., containing a fair collection of interesting objects mostly presented by old boys. The butterfly collection is a large one and contains some rare specimens.

There are two infirmaries, one in the main building (30 ft. by 20 ft.) for ordinary mild cases. The other is an outdoor infirmary occupying a separate building, 56 ft. by 40 ft., away from and to the east of the main building. The latter is divided into four parts and has its own bathing room and closets.

The quadrangle is surrounded with pillared cloisters running along the four sides and everywhere 15 ft. broad. There are 56 finely proportioned pillars and the rain water from the vast expanse of roofing passes down the centre of the pillars to the underground drains which carry it off.

Additional Buildings:—*Fraser Hall.* This hall, a gift of Sir Andrew Fraser, Lieutenant-Governor of Bengal, was built in 1905 and runs parallel to the west wing and about 30 ft. away from it. This fine stone erection in the style of the college is meant to serve a double purpose. It is used to accommodate the Darjeeling public on the days of public entertainment, and ordinarily

as an up-to-date gymnasium, the fittings of which are so disposed as to be removable within an hour. The internal dimensions of the building are: length 92 ft., breadth 30 ft., height 28 ft. from the floor to the highest point of the trefoil vault. The floor itself is 3 ft. above ground, and the stage which is 3 ft. above the floor occupies about 18 ft. of the length and has a green-room (28 ft. by 16 ft.) as an adjunct to the hall. Fourteen large ogival double glass doors allowing openings 9 ft. by 6 ft. provide light and air in abundance. Above the stage is a fine painting containing life-size figures which represent the Fine Arts, *viz.*, Poetry, Dramatic Art, Music, Painting and Sculpture; the whole being a free adaptation of the famous production by Raffaelo Sanzio, known as "The Parnassus." The hall was formally opened by Sir Andrew Fraser on October the 12th, 1905.

The Science Hall.—This structure which also dates from 1905 extends in continuation and at a little distance in the rear of Fraser Hall. Its internal dimensions are 80 ft. by 24 ft. It is divided into three rooms: two halls 31 ft. by 24 ft. for physical science and chemistry respectively, and between them a room 24 ft. by 12 used partly as a general fitting shop and partly as the professor's sanctum.

The chemistry hall is fitted up as a lecture room with a demonstration bench and other requirements, while the remaining space is devoted to practical work. Eight students, and at a pinch double that number, have working tables with all the necessary fittings. Each student has a chemical balance, and the set of chemical apparatus placed at their disposal is the same as that of the City and Guilds of London as used in the Institute, South Kensington.

The disposition of the physical science hall is practically the same: lecture room and practical class. The set selected for the latter consists of the apparatus required by the Intermediate course of practical physics by A. Schuster and C. Lees.

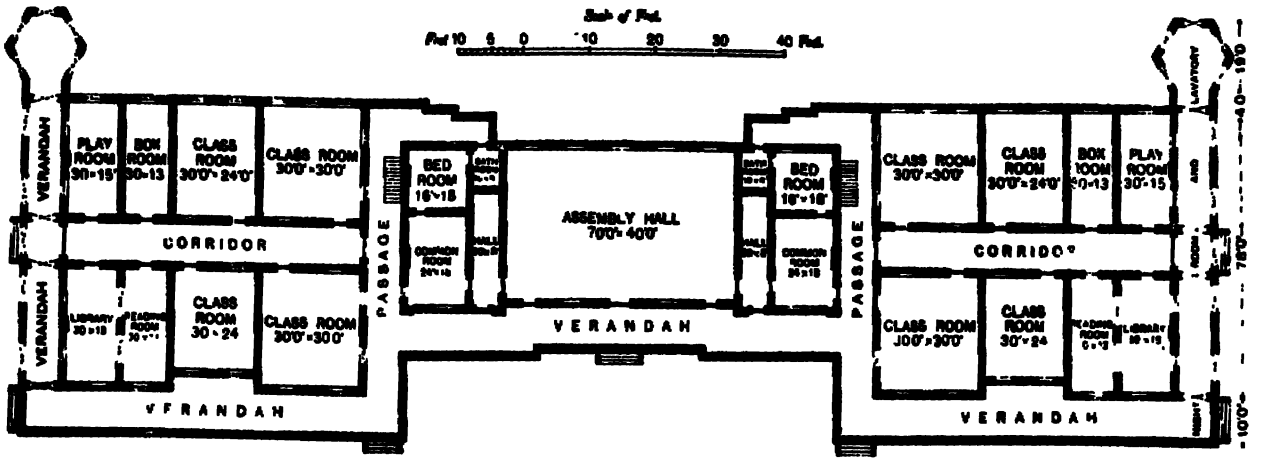
The store room, kitchen and bakery occupy a separate building which runs parallel to the east wing, and whose dimensions are 100 ft. by 25. Under the store room is a vast spacious cellar.

The cricket pavilions.—Both the middle and upper divisions have on their playground a pavilion large enough to admit of the boys spending their recreation time in it when the weather prevents the use of the playground itself. The pavilion of the upper division stands on a flat cut-out in the hill-side at the southern end of the playground and about 10 ft. above it. It is a handsome structure 72 ft. long, commanding a view of the ground and of the snowy range beyond. It consists of a large central hall, 30 ft. by 20, flanked by two rooms, 20 ft. by 18, with a verandah running down the whole length in front. One of the two side rooms has been converted into a billiard room, with two half-size billiard tables. The other room serves as a reading room and contains an army of books, periodicals, etc., while on match days it is used as a dressing room. The centre hall which in ordinary circumstances serves for indoor games, becomes the luncheon room for the contending teams and guests on public match days. Its walls are adorned with a complete collection of large-framed photos representing the successive cricket, football and hockey teams that have upheld the honour of the college on the sporting field.

The pavilion of the middle division is at the northern extremity of their playground. It measures 60 ft. by 20 ft. and is likewise divided into three parts, one of the side rooms containing also two small-size billiard tables, while the other one is used as a carpentry and fret-saw workshop.

An abundant supply of filtered water is laid on to all parts of the college, and the whole college is lit up electrically. There are in all 207 incandescent lamps. The ordinary candle power of the lamps used is 25, but in the study halls, refectory and some class rooms the lamps used have 32 candle power. There is one arc lamp of 1,500 candle power, illuminating the whole quadrangle and surrounding cloisters.

VICTORIA BOYS' SCHOOL, KURSEONG, BENGAL.



Victoria School, Kurseong.

The mixed school from which the present institution has sprung was founded in the year 1879 by Sir Ashley Eden, the then Lieutenant-Governor of Bengal.

The school is maintained by Government for the education of the sons of persons of European descent who are employed in any department of Government service, the fees varying with the parents' income. After providing for their requirements the children of non-Government servants are admitted at a uniform higher rate.

The buildings are grouped along the upper part of an estate of 60 acres and at an elevation of 6,000 ft. above sea level. The local rainfall averages about 180 in. yearly and the shade temperature ranges between 30 and 70. During the rains, which last about five months, an almost uniform shade temperature of 60 is maintained.

The school buildings comprise the main building, the new building, the hospital, the chapel, workshops, the armoury, the gymnasium, the headmaster's house, and various staff quarters.

The central hall of the school is 70 ft. by 40 ft. and the dining hall 90 ft. by 30 ft. There are five spacious dormitories on the second storey, equipped with dressing-rooms, tiled lavatories, and semi-detached night bathrooms.

Most of the class rooms are 30 ft. square, all are wainscotted to a height of 4 ft., the floors of the lower class rooms are graded and the walls of all are tinted and hung with pictures. Separate desks are provided throughout, each class room affording sitting accommodation for about 30 boys, except in the technical department which at present is limited to 16 students. The present well-equipped science laboratory for the technical classes is to be further supplemented by a science and object-lesson room for the school.

The school library, containing between one and two thousand volumes, has, as an annexe, a reading room for the elder boys.

Other rooms are the masters' common room, the headmaster's office, and the teachers' reference library, the sports room (fitted with athletic requisites), a handsomely tiled day lavatory, and numerous sets of quarters for the staff.

Apart from the main buildings are to be found a two storeyed hospital with wards, dispensary, bathrooms, and nurses' quarters, large workshops for smithy and carpentry work, the school chapel, a cruciform building, with seating accommodation for about five hundred people, the armoury, the play-shed, which is to be further supplemented by the erection of a suitable gymnasium, more staff quarters, the headmaster's house, kitchens, godowns, and servants' lines.

The main playground of the school is about 250 yards long by 50 yards broad and has at its south end a large pavilion.

The school contains 190 boys, the staff consisting of a headmaster, eight assistant masters, and one lady teacher. There are also a lady housekeeper, a gymnastic instructor, a steward, two matrons, and a trained nurse.

The school teaches up to the middle school examination with a further technical course extending over two years in classes affiliated to the Civil Engineering College, Sibpur.

Diocesan Girls' High School, Darjeeling.

The building now occupied by the school was erected in 1904 at a cost of three lakhs. It stands in a very healthy position at the north end of the station, the site being levelled out of the hill-side above the cart road leading from Darjeeling to Lebong.

The building, a very substantial one of stone, facing west-south-west and measuring 300 ft. from end to end, consists of two blocks, one three-storeyed and the other two-storeyed, connected by a central tower 56 ft. high, the upper portion of which is used as a studio.

The higher block contains on the ground floor four very spacious class rooms used by the junior school, a science room fully equipped for practical work in chemistry up to the Senior Cambridge standard, and a corridor, 109 ft. by 16 ft., which is used as a play room for the younger children in the rains. In the two storeys above are large airy dormitories, dressing rooms, and teachers' rooms. The other block contains in the ground floor, two class rooms for the senior school, the headmistress' office, teachers' dining room and sitting room, and two corridors, 72 ft. long, running parallel to one another, and separated by a series of arches. A second series separates these corridors from the dining room, 72 ft. by 27 ft., which will accommodate about 120 children.

Above the dining room is a large assembly hall, 72 ft. by 27 ft. with stage and gallery, used for school entertainments and for drilling and dancing.

Attached to the school premises are the quarters occupied by the Sisters under whose care the school has been placed by the Governors, and a large chapel which will seat about 150.

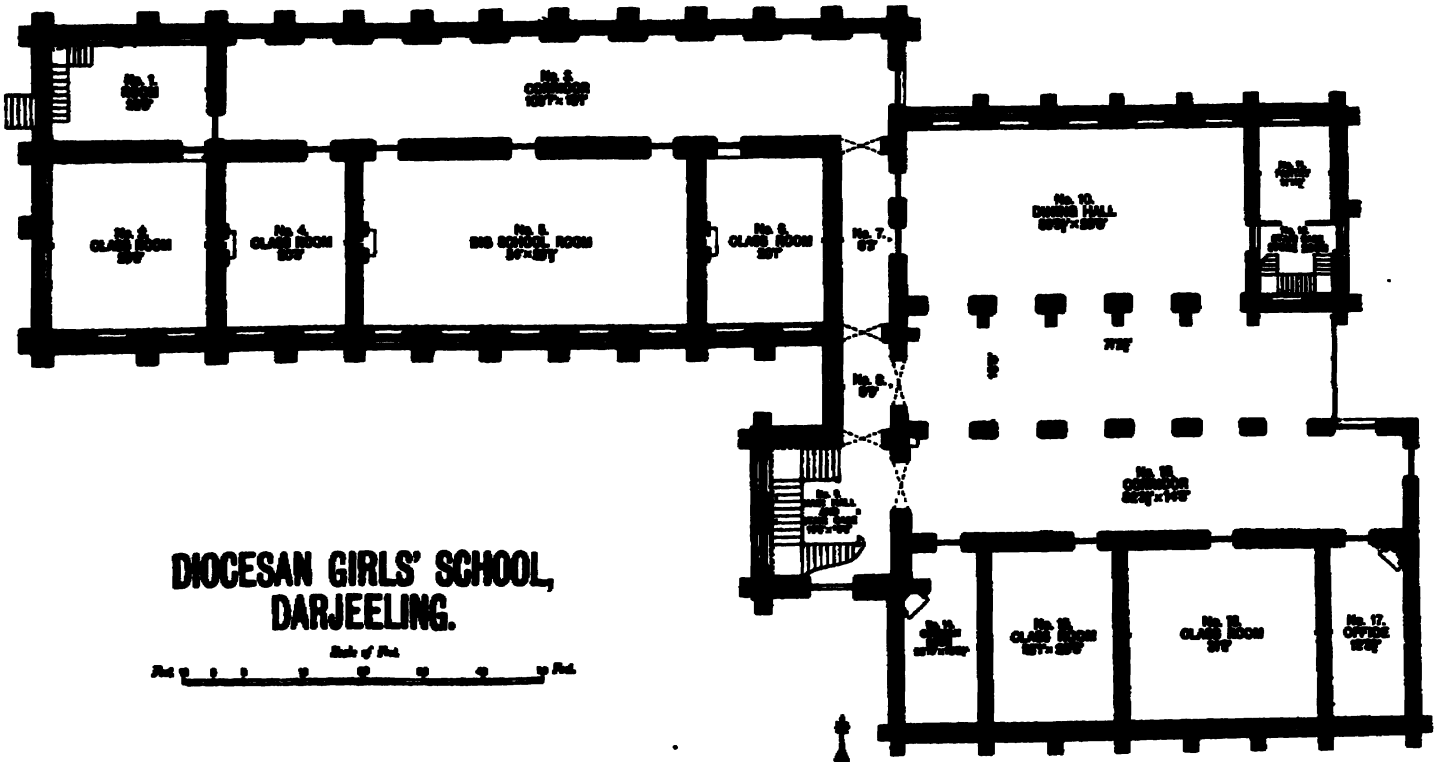
There is a playground attached to the school, the enlargement of which at a cost of Rs. 3,000 is under consideration.

Below the cart road is a small building, with corrugated iron roof, used as an isolation cottage in cases of infectious illness, and a smaller playground. The class rooms, which are particularly bright and airy, are all furnished with separate desks for each pupil. The measurements and accommodation are as follows :—

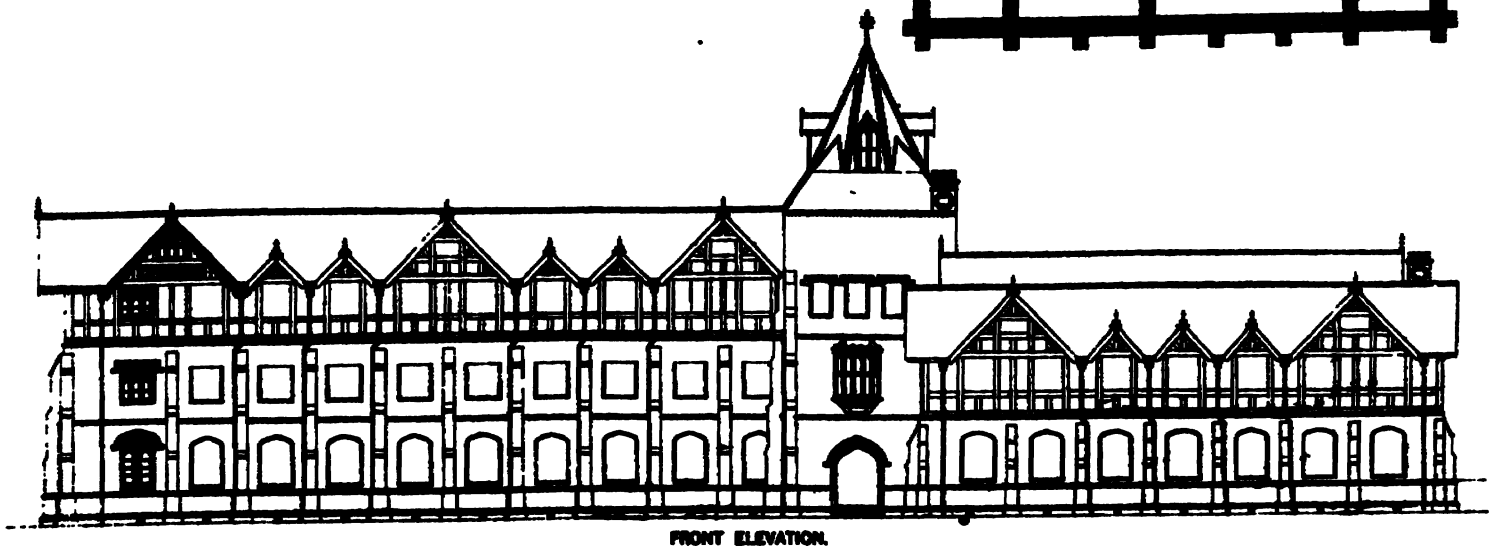
		Length.	Breadth.	Height.			
Form V	measures	31 ft.	by 26 ft.	by 12½ ft.	and	accommodates	25
Form IV	„	20⅔ ft.	by 26 ft.	by 12½ ft.	„	„	14
Form III	„	20½ ft.	by 26½ ft.	by 12¼ ft.	„	„	15
Form II	„	25¾ ft.	by 26⅓ ft.	by 12½ ft.	„	„	25
Form I	„	21¼ ft.	by 26½ ft.	by 12¼ ft.	„	„	20
Kindergarten	„	32½ ft.	by 26⅛ ft.	by 30 ft.	„	„	30

Electric light has been installed throughout the ground floor of the building and in the hall, and will be carried next year into the remaining portions. A valuable reference library has lately been presented to the school by Lady Baker, and she has also added a number of volumes to the school library.

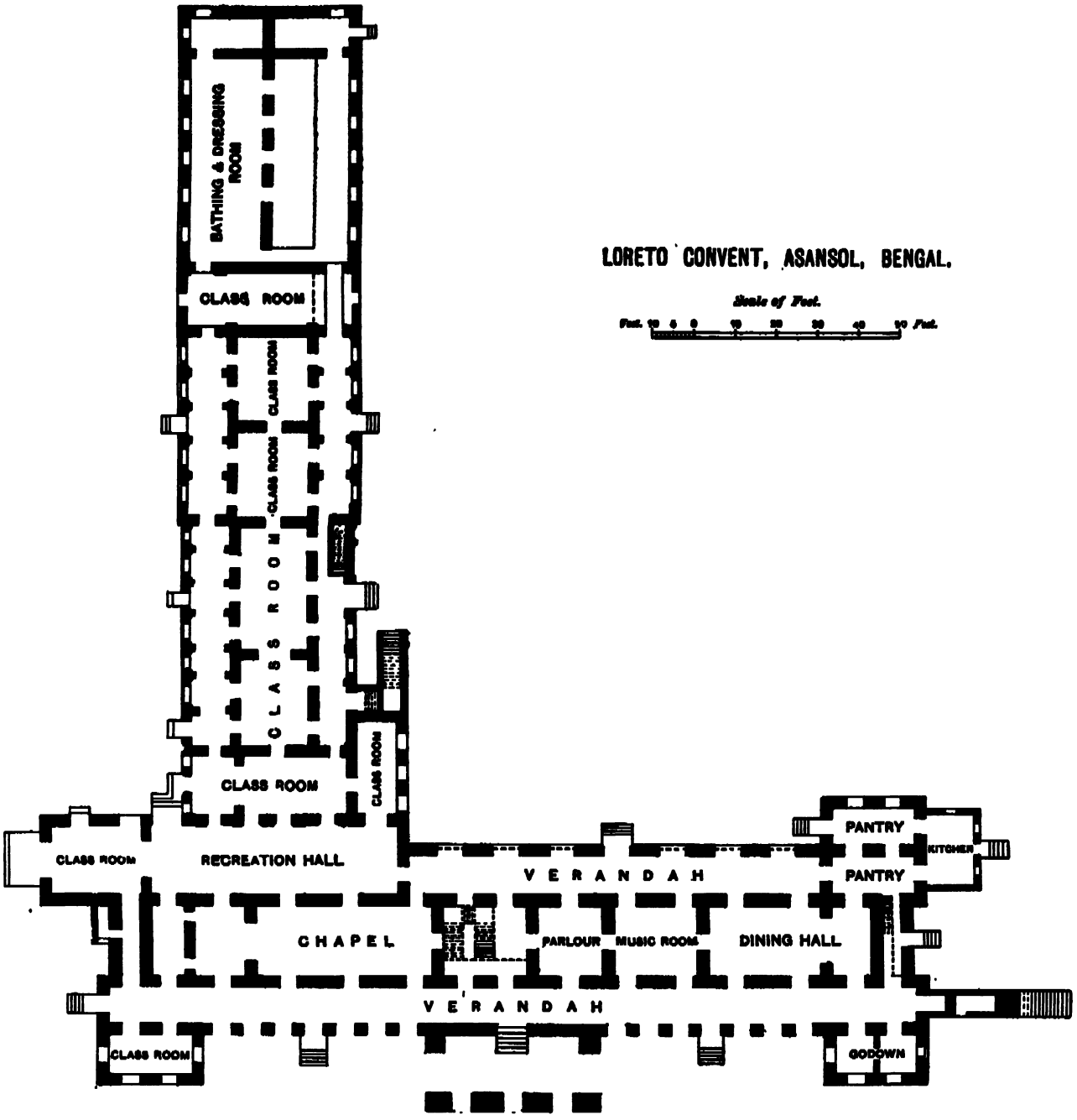
GROUND FLOOR PLAN.



DIOCESAN GIRLS' SCHOOL, DARJEELING.



FRONT ELEVATION.


LORETO CONVENT, ASANSOL, BENGAL.
Scale of Feet.
Feet. 10 5 0 10 20 30 40 50 Feet.
BATHING & DRESSING ROOM
CLASS ROOM
CLASS ROOM
CLASS ROOM
CLASS ROOM
CLASS ROOM
CLASS ROOM
CLASS ROOM
RECREATION HALL
CLASS ROOM
PANTRY
KITCHEN
PANTRY
VERANDAH
CHAPEL
PARLOUR
MUSIC ROOM
DINING HALL
VERANDAH
CLASS ROOM
GODOWN

LORETO CONVENT, ASANSOL, BENGAL.

Loreto Convent School, Asansol.

The Loreto Convent, Asansol, was opened in 1875. It is a two storeyed building, only one room deep, covering about 150 by 40 ft. and with a verandah 11 ft. wide running all round. It is situated in a picturesque spot, and in a locality remarkable for its dry healthy climate.

The Grand Trunk Road is on the north, St. Patrick's High School for boys on the east, and on the west and south there are wide stretches of undulating fields. The compound surrounding the convent is large, comprising an area of about 6 acres, and is enclosed by a barbed wire fence.

The drainage is good, the grounds having a fall of about 8 ft., north, south, and west.

To the east and south of the building are the recreation grounds—each about an acre in extent, and on the north, a short distance from the house, lies the flower garden. Beyond this are two large tanks, one of which is used by the convent washermen, while from the other the water supply for the bathing rooms is drawn by means of a pump, and is conveyed to the building by pipes.

A large well in the compound supplies the establishment with drinking water.

The building is approached by a long carriage drive, which leads into a large quadrangular portico—the main entrance to the building. On the right are the parlour, music room, and children's refectory opening one into the other; while on the left the concert hall is situated. This is a lofty room, 87 by 17½ ft., and is most convenient for the children's recreation on wet evenings, when they are unable to play out of doors.

Adjoining the concert hall are the various class rooms, beyond which the dressing and bathing rooms are situated.

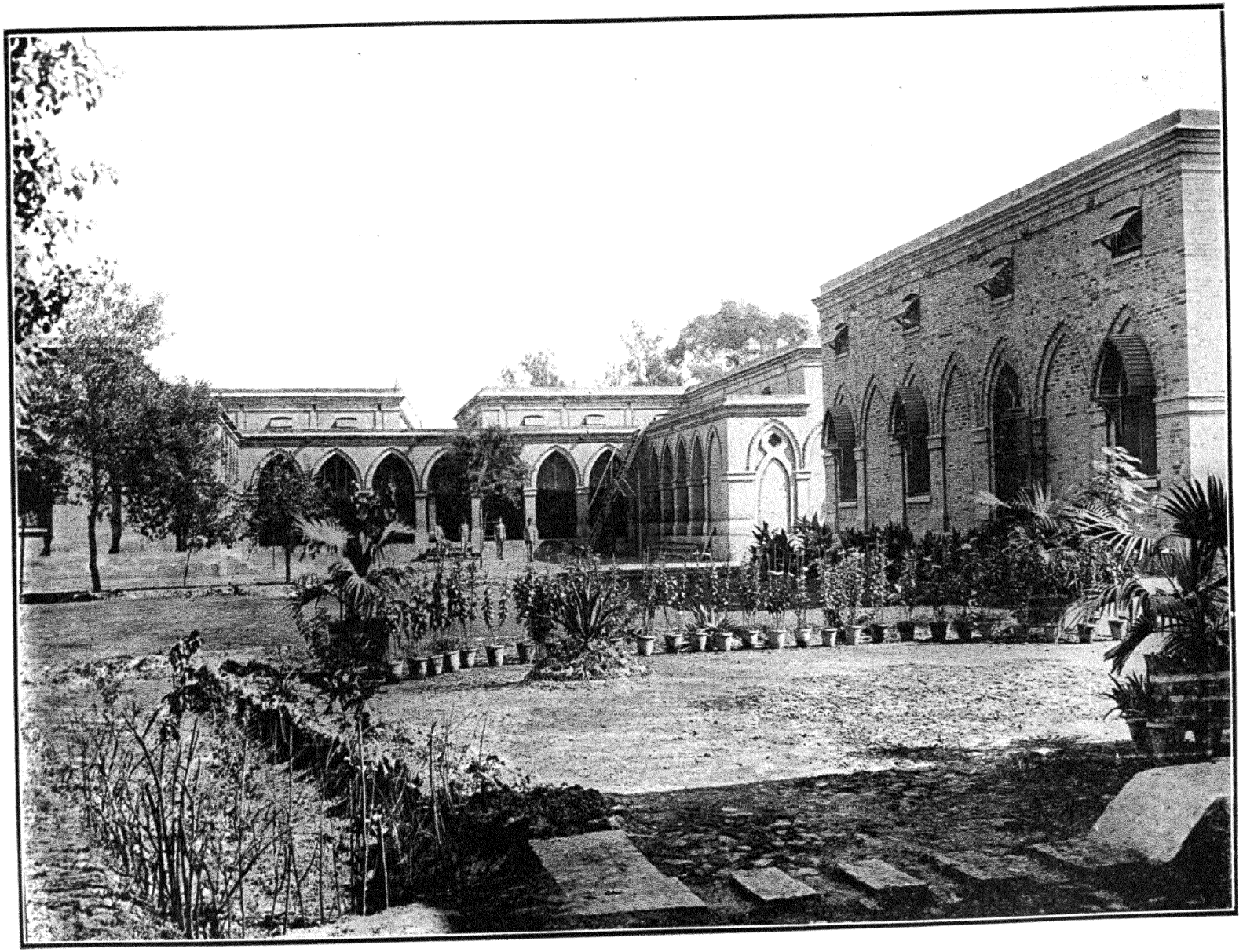
The class rooms and dormitories being considered insufficient for the number of pupils (there are 58 boarders and 59 day scholars), a dormitory 68 by 40 ft. to accommodate 54 boarders is in process of building. By the erection of the new dormitory three additional class rooms will be secured, measuring respectively 63 by 17½ ft., 22½ by 17 ft., and 40 by 14 ft.

On the whole the school is a very healthy one, and it is well ventilated and lighted.

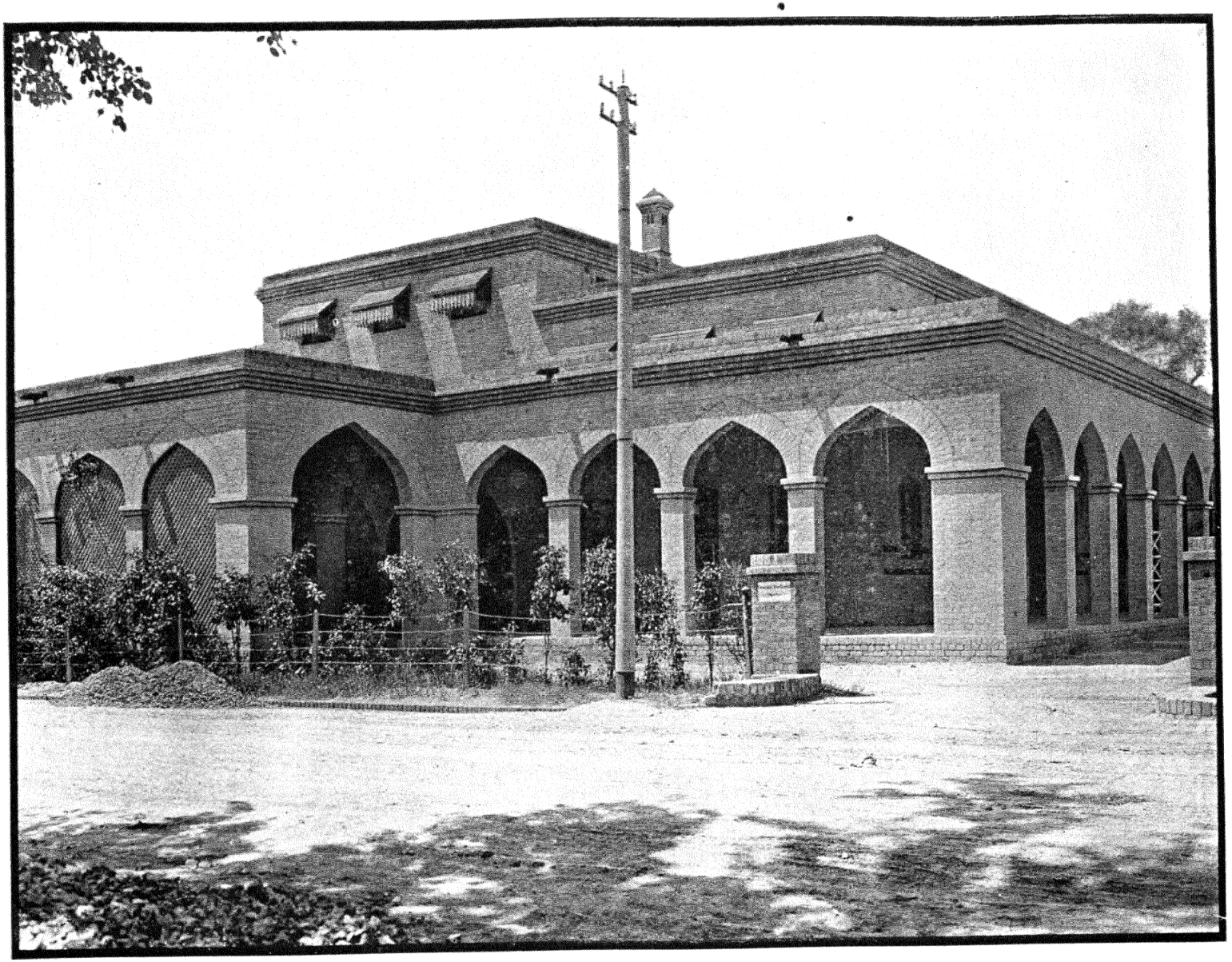
The dormitories and linen rooms are on the upper storey.

Cathedral Orphanages, Lahore.

The buildings now occupied by the Cathedral orphanages were erected specially for them. They were completed, and the schools transferred to them from their old quarters, in October 1892. The buildings consist of two main blocks, one for boys and one for girls, built on exactly similar plans. Each of these blocks accommodates about 40 boarders. The plan of these two buildings is in the form of three sides of a square. The main portion faces east and has a frontage of about 130 ft. From the western side of this portion, at each end, a wing branches off. One wing faces north, the other south. Each has a frontage of about 100 ft. In the main portion the rooms are two deep, the wings are only one room deep. The main portion is divided across its width by a corridor 35 ft. by 16. On each side of the corridor, and opening into it, are two rooms, 40 ft. by 16. Three of these rooms are used as dormitories, the fourth is the dining hall. At the ends of these rooms, remote from the corridor, and along the south wing, are the quarters for the members of the staff. The north wing, in the boys' building, is occupied by the carpentry room, 35 ft. by 16. At the end of each wing is a room 61 ft. square, the one in the north wing is the boys' library, that in the south wing the kindergarten room. About 30 ft. from, and in a line with, the south wing is the school room 50 ft. by 25. The room is divided into three by moveable wooden screens. Each division is occupied by one teacher and his two classes. There are, on an average, six or seven children in a class. About two years ago, the school was supplied with single desks, made according to the pattern recommended by the Education Department of the Punjab.



CATHEDRAL ORPHANAGE, LAHORE.



CATHEDRAL GIRLS' HIGH SCHOOL, LAHORE.

Cathedral High School for Girls, Lahore.

The Cathedral High School for Girls is located in a building specially built for it at a cost of Rs. 28,000 partly by a grant from Government and partly by donations and subscriptions. The foundation stone was laid by Sir Charles Rivaz on May 10th, 1903, and the school was transferred to the new building in October, 1904.

The main building consists of a central hall (area 86 by 25 ft.) which is used for assembling and for dismissing the school and for drill and class singing: it is fitted with Ling's gymnastic apparatus for purposes of drilling. The various class rooms (five in number), the kindergarten room and the headmistress's private room open out from the sides of this hall, and round the two sides and east end of the school are verandahs 10 ft. in width. The verandah at the east end is used as the entrance to the school hall which has two large doors here. At the west end of the school hall is ample lavatory accommodation, there being two sets of lavatories for the primary school—one for boys and one for girls; one set for the upper school and one set for the use of the mistresses. There is one entrance door only at the west end of the hall which is used exclusively by the staff.

On the north side of the school is a field belonging to the Cathedral compound, which is used for games. On the south side of the compound are servants' houses.

The walls are of brick, the roof being flat and supported on steel girders and wooden joists. The upper part of the inner doors are of glass, and all the outer doors are protected by wire doors. The building lies from east to west.

Connected with the school is a hostel built in 1907, with the help of a Government grant, and opened in November 1907; it is built on the opposite side of Hall Road which runs past the school It is designed to accommodate 20 boarders and the necessary staff of teachers. It consists of a central passage running the full length of the building from west to east. Out of this open two dormitories on opposite sides; one for the younger boarders and the other for the older ones; these each measure 20 by 30 ft.; two large rooms, one of which is used solely for meals, and the other as a study and sitting room for the girls, each measuring 20 by 30 ft.; two mistress's bedrooms (18 by 11 ft.), of which each opens on the other side into a further room (14½ by 16) and a bathroom. The bathroom accommodation which is ample measures (20 by 15 ft.) and is provided for at the eastern end of the passage, there being separate sets of lavatories for each dormitory. A pantry is built at the outer side of the dining room, and from this a covered way leads to the kitchen (17 by 15 ft.) and to a wash house (15 by 10 ft.) which are especially fitted up for lessons in practical domestic economy.

A verandah (10 ft. wide) runs round the south and west sides of the building, and all the outer doors are protected by wire doors. The building is of brick; the roof to which a staircase leads to enable the boarders to sleep there in hot weather is flat and is supported by steel girders and wooden joists. The following are the details of the size and accommodation of the various class rooms of the main school building:—Kindergarten room 24 ft. by 27 ft. 6 in. containing desks for 16 children and a table to seat 8; class room B 24 ft. by 27 ft. 6 in. containing desks for 36; class room C 24 ft. by 27 ft. 6 in. containing desks for 23; class room D 18 ft. by 20 ft. 6 in. containing desks for 15; class room E 18 ft. by 19 ft. containing desks for 12; class room F 18 ft. by 25 ft. 6 in. containing desks for 24; headmistress's room 18 ft. by 15 ft.

Lavatories:—Senior A 10 ft. by 8 ft. 3 in.; B 10 ft. by 9 ft.; staff 10 ft. by 19 ft. 10½ in.; junior A 10 ft. by 10 ft. 10½ in.; B 9 ft. by 10 ft.; boys 14 ft. 3 in. by 10 ft.

The main hall also contains 11 desks which are used occasionally for extra classes.

St. Joseph's Convent High School for European and Eurasian Girls, Mandalay.

The two storeyed building where this institution is located was built at a cost of Rs. 75,000 by the Roman Catholic Mission, of which amount the Government of Burma gave a building grant of Rs. 20,000. The foundations were laid in 1892; the building was completed and occupied in 1894. The compound, belonging previously to the Mission, comprises an area of about 3 acres, in the centre of the town. It has a form nearly square, and is enclosed by a brick wall, but is almost surrounded by private houses on all sides.

The building, facing the north, measures 184 ft. by 72 ft. (the verandahs on the four sides included). It consists downstairs of six large rooms used for the different classes. The two rooms at the east and west ends measure 52 ft. by 30 ft. Two other classes in the centre, facing the north, measure 10 ft. by 30 ft. and the other two at the back of the abovementioned are 40 ft. by 20 ft. The centre of the building 60 ft. by 18 ft. is occupied by a large staircase at the back of which is a room used previously for the parlour and now as refectory for the Sisters. The whole upper storey is divided into large dormitories and dressing rooms, giving ample accommodation for 120 beds. Large and convenient lavatories are situated at the east and west ends of the dormitories.

The foundations are made of stone, the lower storey walls of brick, and the upper storey walls of brick-nogging. The height of walls from floor to floor measures 16 ft. and from the upper floor to the ceiling 16 ft. 6 in. The whole building is covered with corrugated iron.

The foundations of a second construction were laid down in 1902; this was completed and occupied in 1903. The cost of this amounted to Rs. 35,000. The Government of Burma gave a building grant of Rs. 15,000, the remainder being supplied by the Mission.

This double storey construction has the form of a cross, faces the east and measures 116 ft. by 90 ft. In both storeys, from south to north, it forms long halls on the whole length 112 ft. by 28 ft. The small wings towards the east and west are 30 ft. by 28 ft.

The lower floor hall is occupied generally by two classes, and occasionally used for performances or distribution of prizes; the room towards the west forms a class room, and the room in front to the east is used as a parlour.

Upstairs the hall is used as a dormitory, the back room as infirmary and the front room is the community room of the Sisters.

The whole building is of brick except the front wing which is of brick-nogging. At both storeys there are verandahs all round except at the four ends and along the sides of the front wing. The height of the walls from floor to floor is 15 ft. 6 in. and from the upper floor to the ceiling 18 ft.

Both buildings are amply ventilated and well adapted for the hot climate of Mandalay.

ST. JOSEPH'S CONVENT, MANDALAY.

CONVENT HIGH SCHOOL, RANGOON.

St. John's Convent High School, Rangoon.

The convent of the Good Shepherd Nuns, generally known as St. John's Convent High School, was built by the Right Rev. Dr. Bigandet, D.D. In 1872 he purchased a piece of land on Commissioner's Road, five acres and a half in area. In 1873 the foundations of the new convent were laid on the above mentioned site and in January 1875 the school was opened. The total cost of the purchase of the land, and erection of the building amounted to Rs. 1,22,000.

The building is a two storeyed one, facing Commissioner's Road, and is erected in the centre of the grounds.

The frontage is 250 ft. by 55, including two verandahs each 10 ft. wide, which run all round the building, reducing the width of the rooms to 35 ft.

In the middle of the frontage is a portico, 20 ft. by 15, to the right are a parlour, and the school library, each 20 ft. by 17, one large room 40 ft. by 35, for the kindergarten class, a music room, 18 ft. by 34, and a room 34 ft. by 35, for the first standard. To the left of the portico we find the rooms similarly arranged, a part of one room, 30 ft. by 17, being partitioned off as a parlour, while the other rooms are reserved for the use of the Nuns.

East and west of the main building are two wings, each measuring 184 ft. in length, the east wing being assigned for the use of the first class boarders, the west for the use of the second class, the arrangements in both being on the same plan. Each wing contains two large halls, 58 and 65 ft. by 40 and 34, respectively, and a refectory 40 ft. by 34. The large halls are used as school rooms, and easily accommodate the different classes.

The upper storey of the building is divided into dormitories and dressing rooms, the main building being reserved for the Sisters, and the east and west wings being allotted to the first and second class boarders respectively. The lower part of the building is of brick plastered ; the second storey is entirely of teak. A verandah 10 ft. wide runs right round the upper as in the lower storey.

Being situated in the east of the town, in a large and well opened space, the convent occupies one of the finest sites and healthiest localities in Rangoon.

It is away from the crowded streets and the noise of the town, and is at the same time within easy reach of the children who attend it from all parts of the town and cantonment.

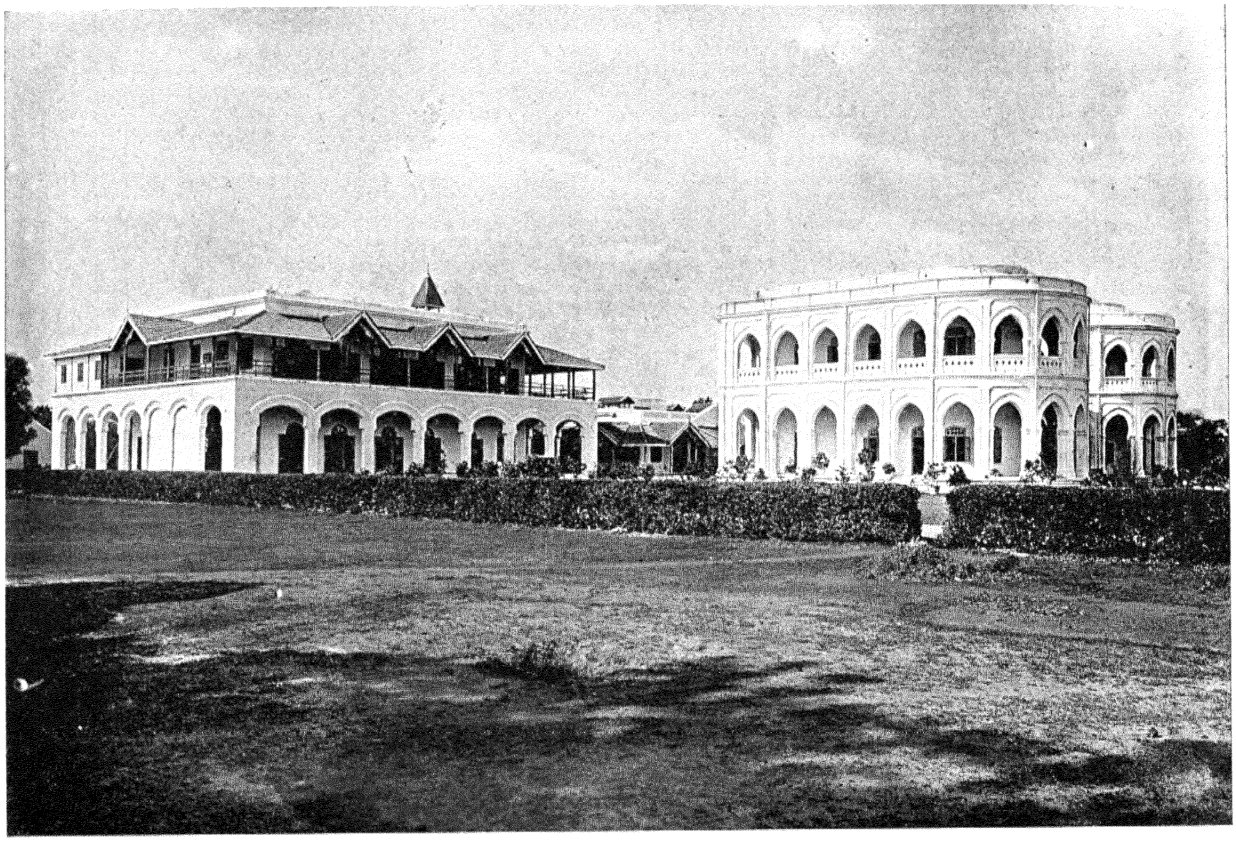
The building has a good and constant water-supply, being connected by pipes with the Rangoon water-works ; the lavatories, etc., are detached from the main building.

The ceiling is very high, and lighting and ventilation are perfect owing to the large number of doors and windows in both upper and lower storeys.

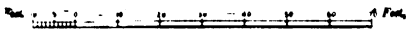
TRAINING COLLEGES AND SCHOOLS

FOR MEN

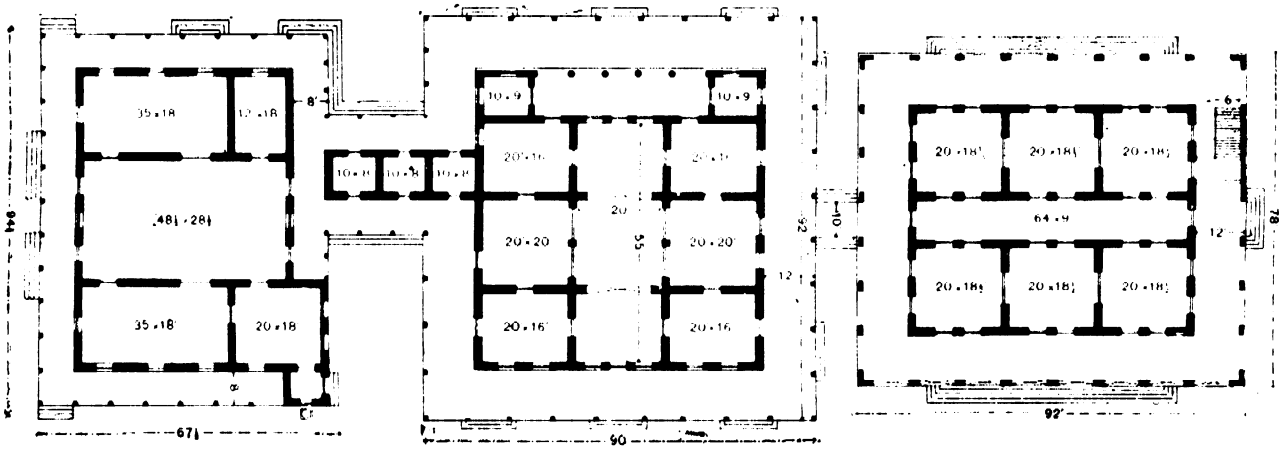
FOR WOMEN



'Scale of Feet.



GROUND FLOOR



TEACHERS' COLLEGE, SAIDAPET.

Teachers' College, Saidapet (Madras).

The Teachers' College was transferred from Madras to Saidapet, a village about five miles from Madras, in 1887.

The college consists of two buildings, one of which is occupied by the normal section and the higher classes of the practising school while the other is occupied by the kindergarten department.

The main building, of which the northern block is shown to the left of the illustration, was not erected on any definite architectural plan. The central portion was the old Local Fund school and to this has been added at three different times these portions which make up the whole institution.

The old Local Fund school is the central portion of the plan given. It is a brick and mud building one storey high. Attached to it (on the left in the plan) is another building which consists almost entirely of one large room, in which the blackboard work of the normal students is done. On the right is a two storeyed building, the lower part of which is used by the practising school, and the upper part contains the college offices. The large building, shown to the right in the illustration, has recently been constructed for the kindergarten department. One large room upstairs contains the library.

The grounds are very extensive and besides the playgrounds and gymnasium contain a hostel for the students and the Vice-Principal's quarters. The health of the students is always good and this is attributed to the fact that there is no crowding.

Government Training School, Nellore.

The building is designed to accommodate a training school for elementary teachers consisting of three normal classes of a strength of 25 each, and five model school classes, *viz.*, an infant class and standards I to IV with a maximum strength of 30 in each class. The building was erected by Government at a cost of Rs. 42,220 and was completed in 1907.

The design adopted is of the type followed in the Presidency for training schools for elementary teachers. A similar building was completed in 1907 at Villupuram in the South Arcot District, and similar buildings are now approaching completion at Tinnevelly and Dindigul (Madura District).

The compound surrounding the school at Nellore is 1·41 acres in extent. It is completely surrounded by a masonry wall.

The main building which is of well burnt red brick, has two storeys. The ground floor comprises an entrance lobby, a main hall, 27 ft. by 12 ft., four class rooms, each 20 ft. by 18 ft., intended for the model school, and two larger rooms, each 26 ft. 6 in. by 28 ft. The former of these is intended for blackboard exercises, and the wall space is blocked all round to the height of 8 ft. The latter is designed to serve as a room for criticism and model lessons, and is arranged like an amphitheatre in three tiers on three sides, where the normal students sit to observe one of their number or a permanent teacher giving a lesson to a school class, which is placed in the middle of the room. The main hall extends to the height of the roof, and is provided with galleries on two sides at the level of the upper floor. It it used for roll call, indoor drill, examinations, meetings of the teachers' association connected with the school, and generally for all purposes for which more than one or two classes are assembled together.

Access is had to the upper floor by two staircases placed at the ends of the entrance lobby. The floor space is divided into six rooms, two 28 ft. 4½ in. by 26 ft. 10½ in., two 20 ft. 2¼ in. by 18 ft. 4½ in., and two 26 ft. 10½ in. by 18 ft. 4½ in., which are used for one model school class, three normal classes, an office and a museum.

The floors throughout are paved with slabs of a dark close-grained stone known as Cuddapah, which is readily worked to a smooth surface and is very durable.

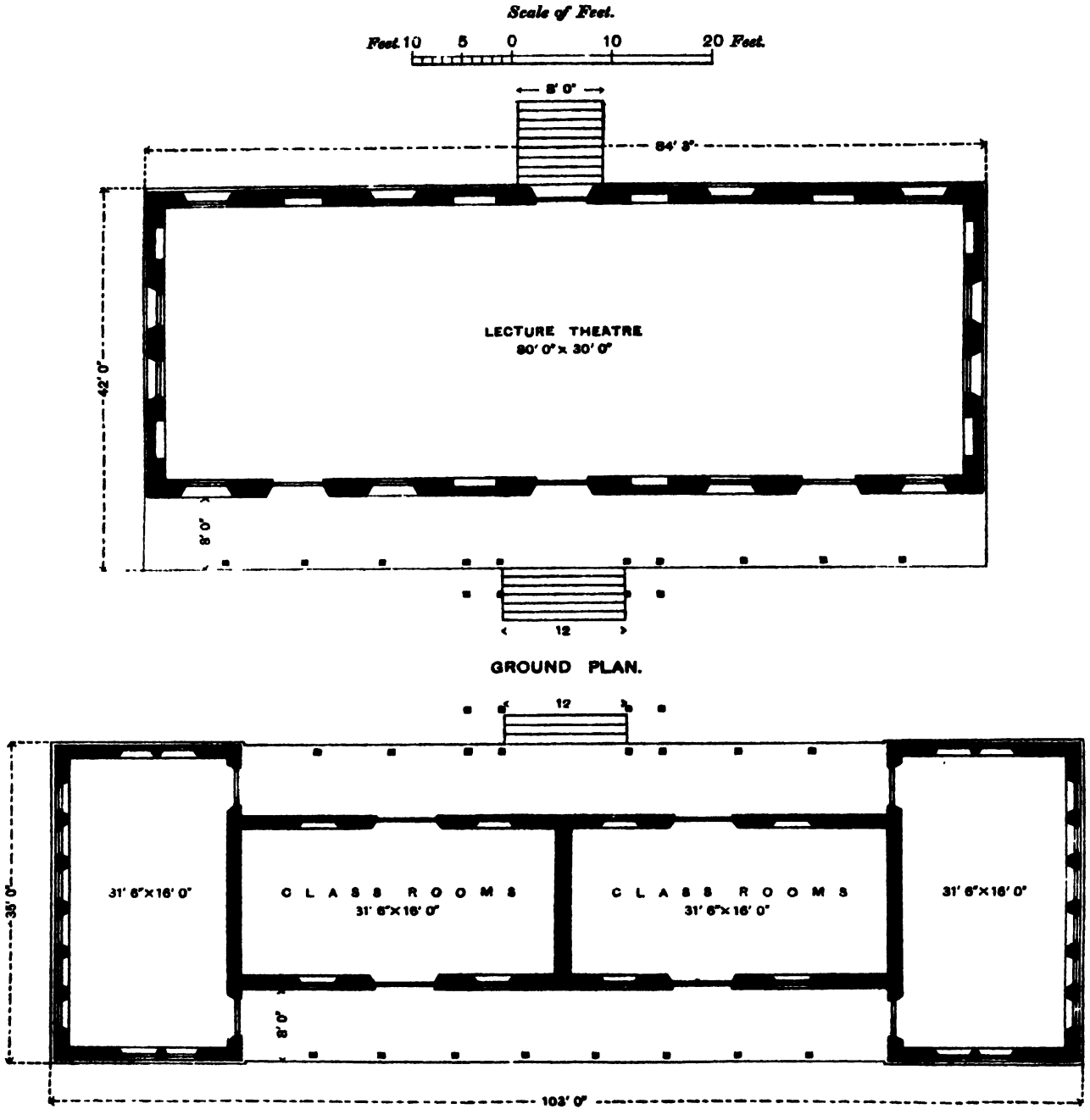
There are no verandahs except an interior one 10 ft. 10½ in. wide at the back of the main hall, a corresponding one, 9 ft. 4½ in. wide, on the first floor level and one above the entrance lobby.

In most of the class rooms the available wall space is blocked to a certain level, so as to provide a surface for chalk drawing by the normal students and pupils.

The rooms are well lighted and ventilated by numerous windows. The direct glare of the sun is kept out by sunshades, formed of stone slabs supported on brackets outside above the windows.

The façade and side of the elevations of the building are not unornamental.

TRAINING COLLEGE, DHARWAR.



GROUND PLAN.

Dharwar Training College.

The foundation stone of the Dharwar Training College buildings was laid in 1873 by Mr. E. P. Robertson, the then Collector of Dharwar, to whom the training college and the Government high school close by are indebted for his exertions in collecting contributions towards the cost of the buildings of the two institutions. The training college buildings were completed in 1875 and the training college, which was till then at Belgaum, was transferred to the buildings on 9th June 1875.

These buildings are situated on a high, open and gently sloping ground to the west of the town of Dharwar, and consequently the drainage both inside and outside the college compound and other sanitary conditions of the surroundings leave little to be desired, to which may partly be attributed the immunity of the college quarters from plague during the successive epidemics of the disease in the town proper. The Dharwar town stands at a sea-level of 2,500 ft. Though situated at a distance of about 80 miles from the Arabian Sea, it is open to the sea breeze, as it stands on the ridge or watershed of the Sahyadri range of hills. The temperature here never rises above 100° during the day in the shade, nor does it fall below 75° during any part of the year and the rainfall varies from 30 to 45 in. To these conditions is due the comparatively cool and agreeable climate of the place almost all the year round; but at the same time, owing to its elevated situation, the water-supply is usually scanty.

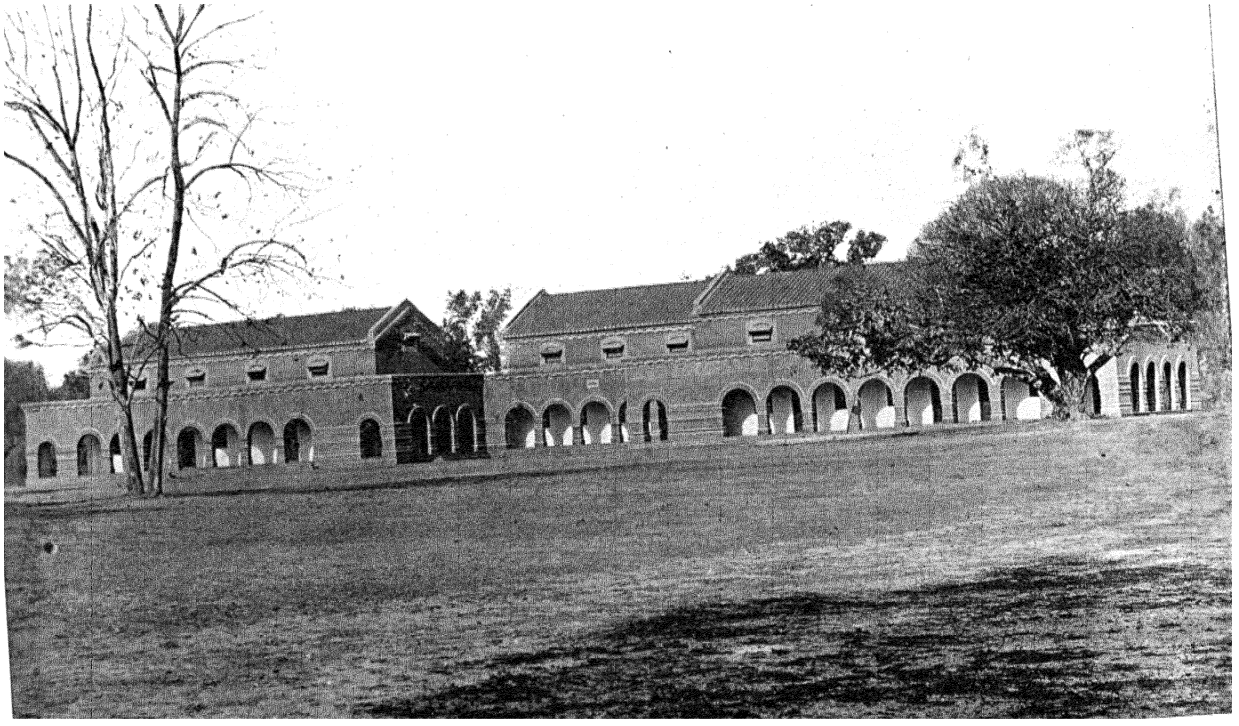
The college buildings consist of four blocks enclosing a quadrangular garden measuring 235 ft. by 225 ft. The block running from east to west and measuring 102 ft. by 35 ft., contains four class rooms facing north; the two side blocks measuring 250 ft. by 25 ft., contain the Principal's and Vice-Principal's single-storeyed residential quarters, the double-storeyed dormitories for students, and two spacious halls (each measuring 40 ft. by 25 ft.), the one for the practising school attached to the college, and the other for the college workshop. The fourth block facing south, and running from west to east, parallel to the first block, consists of three detached buildings of which the central one is a double-storeyed building measuring 91 ft. by 30 ft. with dormitories for students on the ground floor and two spacious rooms on the first floor, one for criticism lessons with rising tiers of benches and the other with the lower portions of the walls painted black and with other arrangements for instruction in drawing. A fifth block of buildings running parallel to the last preceding block contains boarding houses for students of the three principal communities, *viz.*, Brahmins, Lingayats, and Mussalmans, who do not dine together, and has a side block containing store rooms, servants' quarters, etc. A new double-storeyed block (measuring 168 ft. by 27 ft.) of buildings running parallel to the western wing of the old dormitories has been recently constructed for providing room for the residence of the increased number of students admitted to the college, and a spacious general lecture hall measuring 84 ft. by 42 ft. with a raised platform, has also been recently built in the central open quadrangular space of the main college buildings, running parallel to the class rooms at a distance of 20 ft. The college gymnasium and a few more servants' quarters, latrines, etc., are situated on the western and northern outskirts of the college compound, which in all measures 22 acres of land.

The college rooms and the new lecture theatre are single storeyed. They are all built with burnt bricks and mortar and their roofs are covered either with country pot tiles or with Mangalore tiles. The college proper has verandahs on both sides and the other buildings including the new hall have a verandah on one side from 6 to 10 ft. wide. The height of the room varies from 20 to 35 ft. and they have a plinth, which varies from 1 to 3 or 4 ft. high, owing to the sloping nature of the ground. All the buildings are paved and they receive light from glazed windows and doors and, where more light is necessary, from sky-lights.

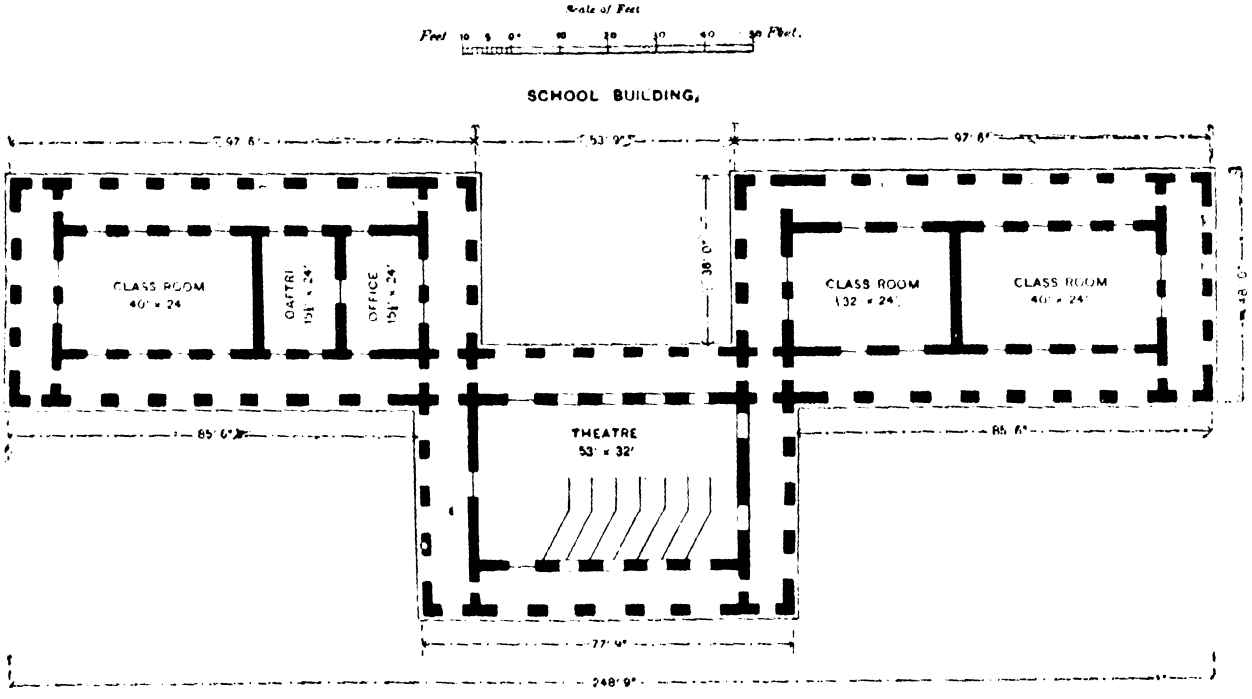
The college proper consists of four class rooms each 16 ft. by 32 ft. with a porch in front joining the college and the new hall. These rooms answered their purpose well for a time, so

long as the college had only four classes as under :—one of third year students; one or two of second year students; two or one of first year students; but on account of increase of primary schools the number of classes has increased to six, and new rooms for the classes are under consideration. The present class rooms will then be occupied by classes of the practising school which have been growing steadily and require additional accommodation.

The total cost of the buildings, which cover a plinth area of 50,318 sq. ft. and which have been built from time to time according to the ever increasing requirements of the college, have so far amounted to Rs. 2,52,333, or about Rs. 5 per sq. foot of plinth area.



NORMAL SCHOOL, GORAKHPUR.

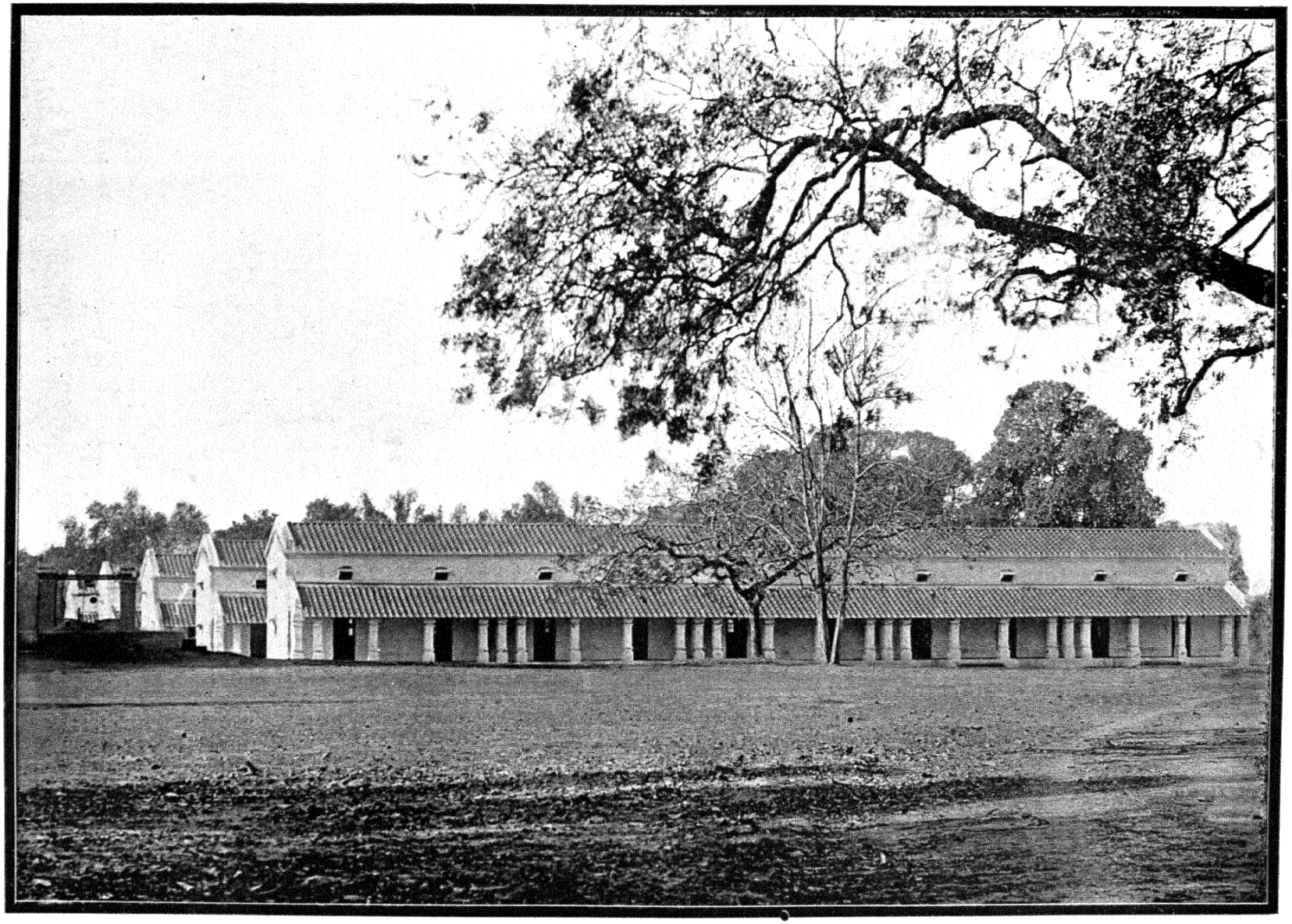


Normal School, Gorakhpur.

This is a red brick building and was completed in 1906 at a cost of Rs. 34,776. There are two class rooms 40 ft. by 24 ft. and one class room 32 ft. by 24 ft. There is a teaching theatre, size 53 ft. by 32 ft. with the benches rising in tiers; and accommodation for an office and daftri is also provided. The building is a lofty one with gable ends, and clerestory windows are provided under the roof for ventilation. There are wide lofty verandahs all round the building which faces east and west and is open to the prevalent winds at Gorakhpur. The building is paved with Mirzapore stone throughout and the plinth is 2½ ft. above ground level.

Boarding House, Normal School, Gorakhpur.

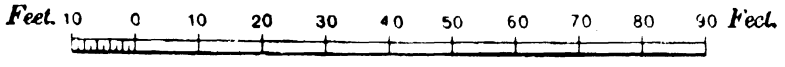
The boarders are accommodated in five different blocks; each block consists of five rooms, 30 ft. by 12 ft. Each room has accommodation for five boarders so that each boarder gets a space of 72 superficial feet. The cook houses are separate and detached. Each building is of bricks lime plastered and whitewashed with doors opening on to a verandah on one side (the north) and windows on the other, the roof is of tiles with clerestory windows below.

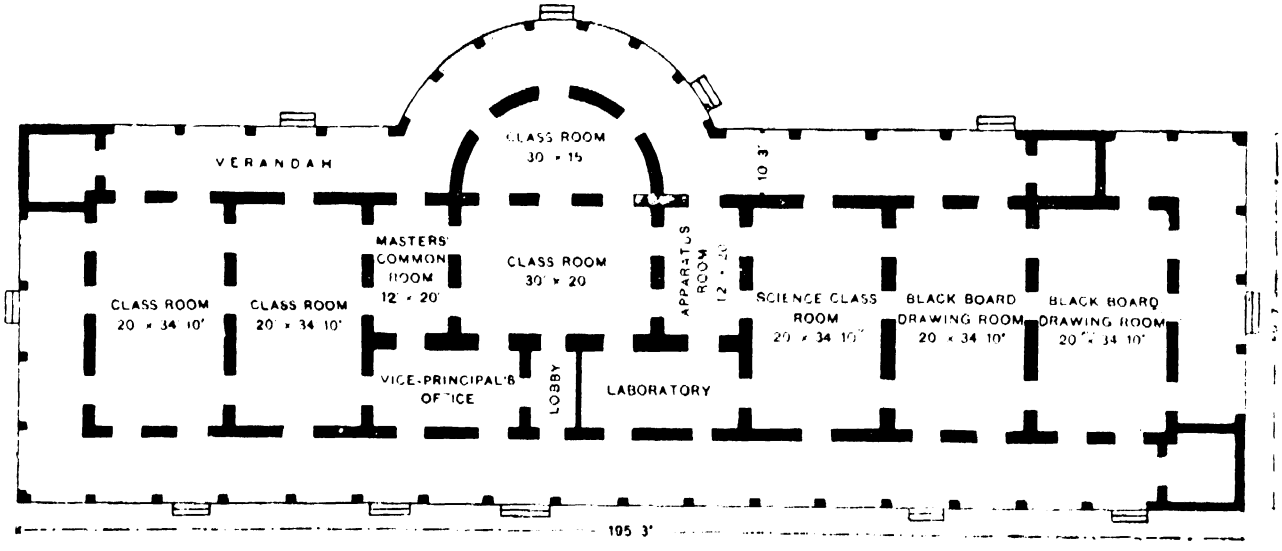


BOARDING HOUSE, NORMAL SCHOOL, GORAKHPUR.

TRAINING COLLEGE, ALLAHABAD.

Scale of Feet.





GROUND PLAN
CLASS ROOMS AND SCIENCE LABORATORIES.

Higher Grade Training College, Allahabad.

This college occupies a good position in the station, being close to the public park and far removed from the city. About ten years ago there were several villages in the neighbourhood, but these have gradually been removed, and now there remain only two at the rear of the college compound.

The compound extends to about 36 acres. In it are the following buildings :—the Government high school, the hostel of the school, two college buildings and the college hostel. The high school and its hostel are not under the control of the Principal of the college, but the close proximity of the high school is a great advantage. The college and high school have separate portions of the compound allotted to them as playing fields.

Of the college buildings one was "taken over" and the other was built for the purposes of a training college. The former was once the district high school. The plan of it is given in the illustration. It is an oblong shaped building about 175 ft. long and 60 ft. broad with five class rooms each about 19 ft. by 35 ft. by 21 ft., two rooms for the staff, a room for lady students, a bathroom also for women students and three godowns. At present there are only three women students. The building was built about the year 1843 at an estimated cost of Rs. 21,905 and was altered in 1901 at a cost of Rs. 20,985, for the purposes of a training college. There is a 10 ft. verandah all round. This building is suitable for the uses to which it is put. High school classes come to it to afford the students practice in teaching. The design—five class rooms being in a row and all opening on the same verandah—is well adapted for the supervision of this teaching by the college staff. When classes are not being taught in this building, it is useful in affording a number of rooms for "tutorial" work. Each of these class rooms can accommodate 30 students.

The second building, erected specially for the training college, was built in 1905 at a cost of Rs. 29,060. Its elevation is shown in the illustration. It consists of four rooms : (1) Principal's office 15 ft. by 20 ft. by 20 ft. with a bathroom attached. (2) A clerk's office adjoining the Principal's room. This room is divided into two parts by a screen and the portion to the rear of the building is used as a students' reading room. There is a separate entrance to this portion. (3) A teaching theatre. This room measures 50 ft. by 30 ft. by 30 ft. It has a gallery 3 ft. 7 in. at a height of 10 ft. extending all round. The room is used for criticism and demonstration lessons. On the floor are 8 dual pattern desks accommodating 32 students. It is questionable whether this design of room is the best possible for the observation of teaching. The gallery is unnecessary. Hitherto visits from outside teachers have been few and far between. Moreover the presence of visitors in large numbers would only encourage "display" lessons. The position of the raised seats behind the class is not so satisfactory as a position at the side of the class ; for observation of the taught is as instructive as observation of the teacher. (4) This room measures 40 ft. by 30 ft. by 20 ft. ; it is used as a lecture room and examination hall. The whole building has a verandah 10 ft. 6 in. in width and the rooms are paved with stone slabs.

It is proposed to erect a new block which will consist of two wings, the one being a science laboratory with store room, and the other a manual instruction room, with store room. Adjoining these rooms there will be, in the centre of the building, rooms for the science professor and manual instructor respectively. Each of these rooms will have a bathroom and small workshop attached, and will open directly on the corresponding laboratory and also on the verandah. The laboratories will measure 40 ft. by 30 ft. and will be fitted up as model school laboratories. The apparatus will be mostly "home made" and inexpensive.

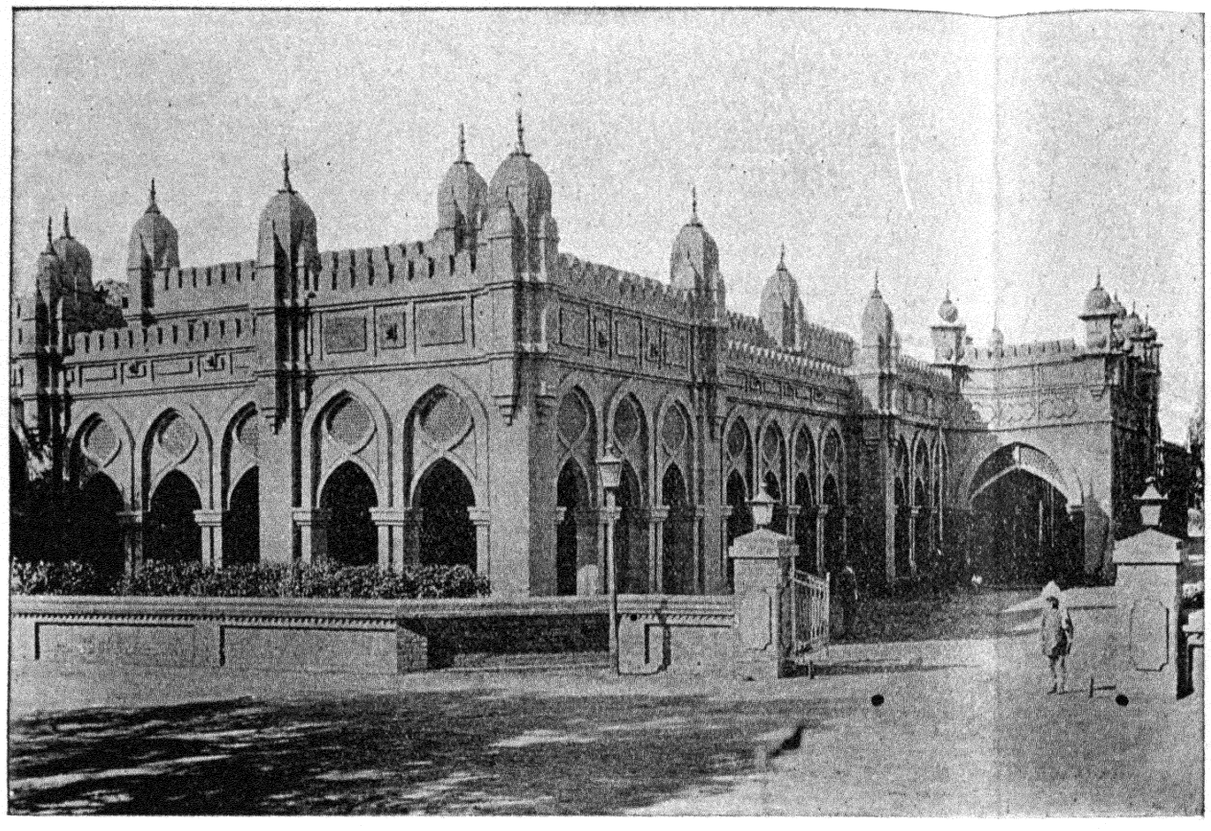
The college hostel consists of a square courtyard bounded on three sides by students' rooms (50), and on the other side by a recreation room and reading room.

Central Training College, Lahore.

The exterior of the building with its double entrance and the absence of symmetry in the arrangement of the rooms show that the present buildings are the outcome of extensive alterations and additions to a much smaller and more compact structure.

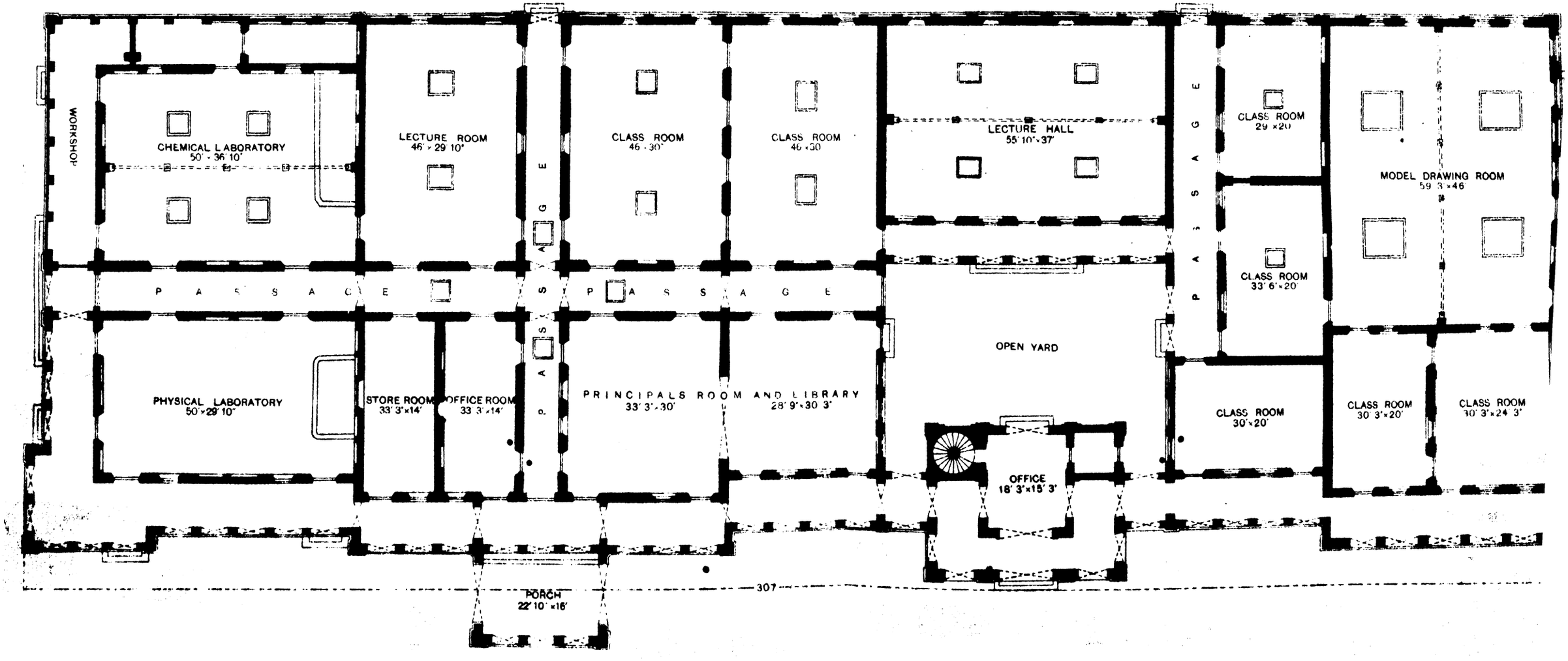
The original building extended from the north end of the present block to the porch. It was designed to provide accommodation for a training college for secondary school teachers, a normal school for the training of about 50 primary school teachers and a small practising school consisting of four primary classes. It contained fourteen rooms—five being in the front of the building and allotted to the college classes. Three of these still exist on the north side of the arch, which opens into the courtyard. The two on the south side of the arch have been converted into one. Around the courtyard the other nine rooms of the block were built. The three class rooms set apart for the primary classes were on the north side; the three rooms on the west, facing the arch, were allotted to the normal school; and the three on the south were used as an office, a staff-room and a room for the oriental teacher of the normal school. The five rooms in the front of the building set apart for training college classes comprised a science room fitted with a gallery, a narrow badly lighted room in which scientific apparatus was stored, a class room in which the vernacular students were taught, a small library, and a room in which the two Anglo-vernacular students were instructed together in English and school management. The accommodation was not insufficient when the classes were small and the course of study limited to purely professional subjects, but as the number of students increased and the curriculum was extended, in order to make the training more efficient, the need of additional accommodation became imperative. Nothing was however done till 1904, when, as a result of the Educational conference held at Simla under Lord Curzon, the report of the University commission and the decision of the University to institute a degree in teaching, it was found impossible to give effect to the recommendations and decisions of the Educational authorities without an increase in the accommodation. It was felt that if the training was to be in any degree efficient, the course of study must be extended to two years: that if the output was in any degree to meet the needs of the province, the number of students must be more than doubled; that if instruction in science was to be practical a more satisfactory lecture room and properly equipped science laboratories must be built and that no satisfactory instruction in drawing could be given till a suitable room for the teaching of the subject had been provided. The erection of a normal school and the enlargement of the central model school made the transfer of the normal school and primary classes possible, and placed the whole block at the disposal of the college. The rooms thus vacated were however unsuitable. The class rooms were small, badly lighted, and poorly ventilated; and there was no room in the building capable of accommodating all the students on those occasions when it is desirable to bring them together. Hence the reconstruction of the whole building was decided upon.

As it was necessary that the rooms set apart for instruction in drawing should have a good north light, a drawing-room was built by extending the west and north walls. The three class rooms forming the northern sides of the original rectangle were converted into two larger rooms. One of these was set apart for instruction in kindergarten principles and methods; the other was allotted to a section of the senior vernacular class. The three rooms on the western side of the rectangle, up to that time used by the normal school, were converted into a large hall and museum. Similarly, the three rooms on the south of the original rectangle were converted into one large room—fitted with a gallery and set apart for one section of the junior Anglo-vernacular class. An effort was made to make this room a model lecture room. The walls of the room were painted a light green, a large space in front of the class was fitted with a continuous blackboard, a hinged blackboard for containing records of a series of lessons was provided, and the room was furnished with the most approved single desks.



CENTRAL TRAINING COLLEGE, LAHORE.

GROUND PLAN.



Scale of feet.

Feet. 10 5 0 10 20 30 40 50 60 70 Feet.

By the extension of the east and west walls of this room in a southerly direction a similar room for the other section of the same class was provided. The furniture is of a less modern type and the appearance of the room less attractive.

To the south of these rooms were built the office, the store room for physical apparatus and the physical laboratory. These are in a line with the five original rooms of the training college. On the west side and in a line with the hall and the two class rooms provided for the junior Anglo-vernacular classes are the science lecture room and the chemical laboratory. Part of the verandah on the south side of the college has been closed and is used as a workshop — every senior Anglo-vernacular student being required to devote two hours a week to manual training.

Thus the college building is roughly 305 ft. long and 107 ft. wide. It contains 16 rooms exclusive of the workshop and the principal's office which is over the arch leading to the courtyard. The dimensions of the larger rooms are given below: hall 56 ft. by 37 ft.; drawing room 59 ft. by 46 ft.; chemical laboratory 50 ft. by 37 ft.; physical laboratory 50 ft. by 30 ft.; J. A. V. class rooms 46 ft. by 30 ft. The laboratories are well fitted and furnished—gas and water have been laid on and in each 40 students can work at the same time. All the partitions, reagent shelves, etc., on the tables, are of glass supported by brass standards, so that while the students are engaged in their practical work the demonstrator can see every student from any part in the room.

A spacious gymnasium 80 ft. by 40 ft. with an abundance of light and ventilation has been built and equipped in a manner which makes it the best in the province. A covered swimming bath 60 ft. by 30 ft. with a 10 ft. verandah all round, has also been constructed for the use of the students.

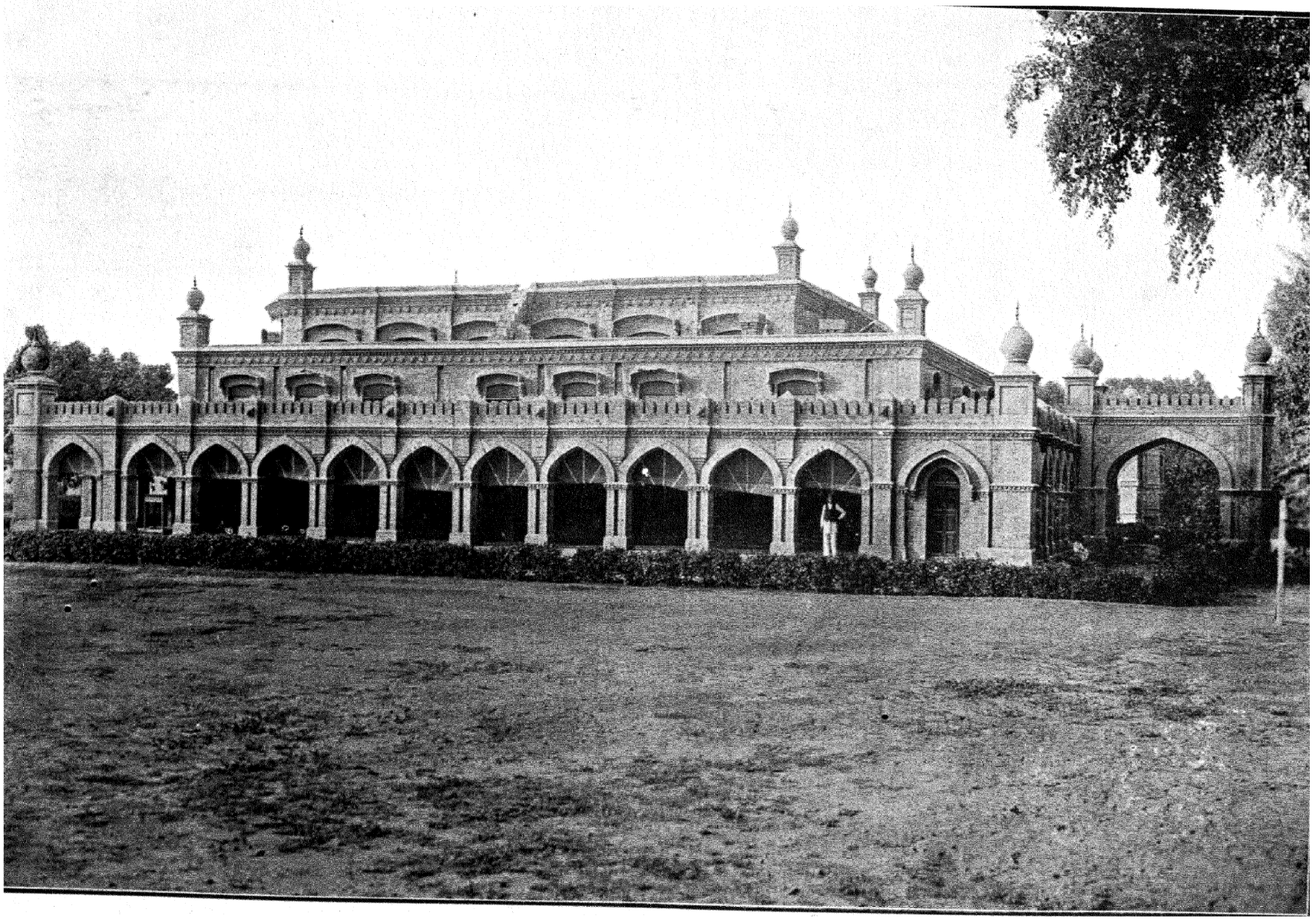
The boarding house attached to the college has accommodation for 200 students and all are expected to reside there while undergoing a course of training. It consists of a number of barracks radiating from an octagon, which contains two tennis courts. Each barrack is 100 ft. long and 16 ft. wide, and accommodates 24 students. Round the walls of the octagon runs a balcony by which the superintendent may inspect any barrack at any time without disturbing the students.

The cost of the buildings was as follows:—original college block Rs. 15,000; additions and alterations Rs. 61,955; boarding house Rs. 51,946; gymnasium Rs. 10,260; swimming bath Rs. 12,307.

The Normal School, Lahore.

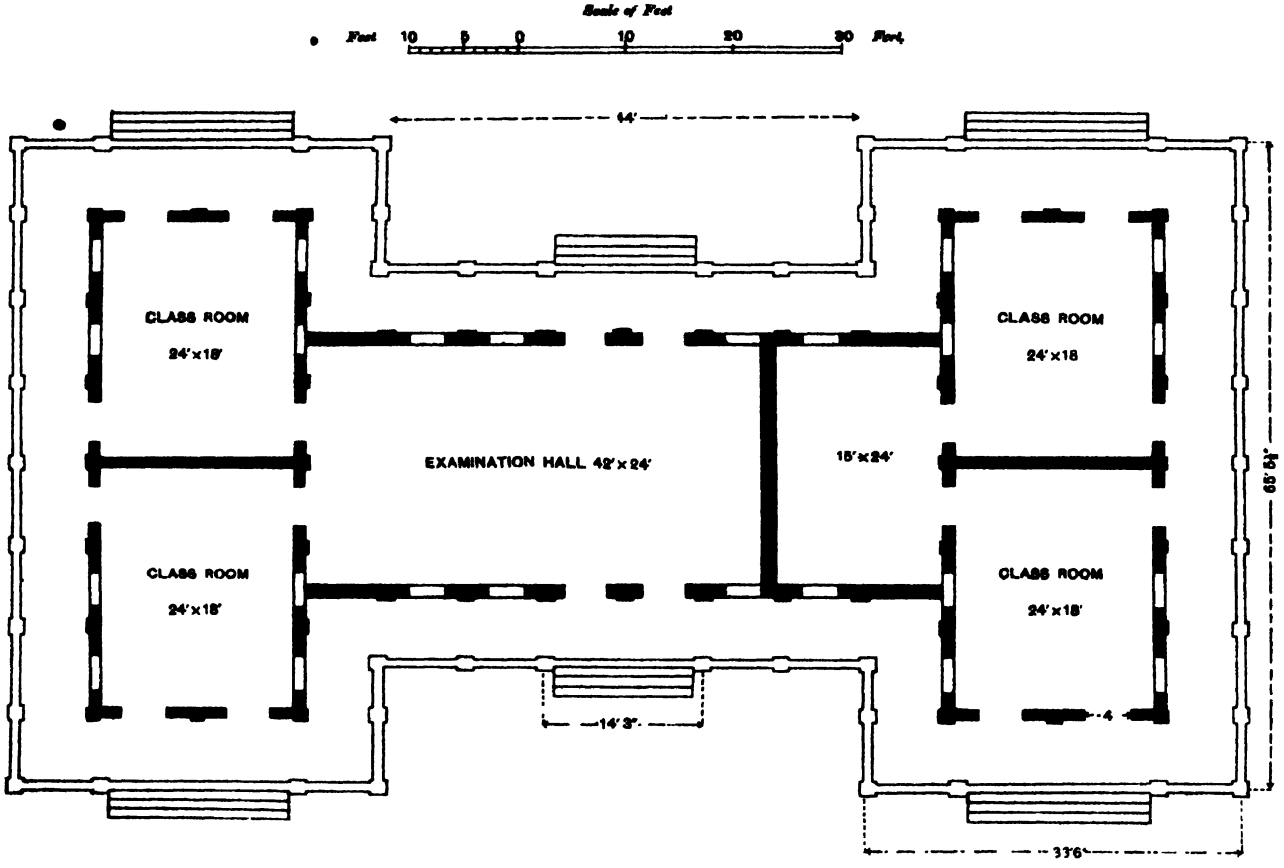
The three institutions, the Central Training College, the Normal School, and the Central Model School (the practising school common to both the institutions) with their boarding houses, two playgrounds, swimming bath and gymnasium, occupy an area of about 15 acres enclosed on all sides by a *pucka* boundary wall. The compound is practically rectangular in shape, and is surrounded on the four sides by the Rai Mela Ram mills, the Principal's bungalow, the district court and the police guard, but well separated from them by public roads. The normal school is on the east, the Lower Mall separating it from the police guard. The building was specially built for this institution at a cost of about Rs. 38,000 and was completed in October 1901, when the school (formally held in three rooms of the old Central Training College building) was transferred to it. The main building of the school measures 110 ft. by 106 ft. covering an area of 12,515 sq. ft. (including the portico on the east) and consists of a spacious central hall 63 ft. by 38 ft. by 26 ft. with three class rooms (each measuring about 24 by 20 by 18 ft.) on the north and two rooms each 30 by 20 by 18 ft. on the south. Each of the rooms has almirahs fixed in the walls to provide accommodation for the apparatus in use in the school. On the east the entrance lobby leads into the library and the headmaster's room on the left and the school museum on the right. These rooms are also provided with almirahs like the class rooms. A verandah 16 ft. wide and 12 ft. high runs round the entire building. The plinth is 2 ft. high, and is of *pucka* brick. The roof is supported on steel girders and wooden joists. The hall is used for model drawing and examination purposes. The room set apart for drawing purposes does not afford sufficient accommodation for model drawing which is, therefore, done in the central hall.

Good ventilation has been provided throughout by means of a number of large doors, windows and ventilators. The students use a portion of the playground of the central model school.



NORMAL SCHOOL, LAHORE.

NORMAL AND PRACTISING SCHOOL, TOUNGOO, BURMA.



Government Vernacular Normal and Practising School, Toungoo.

The normal school is a one storey building of brick 48 ft. long with a 6 ft. 6 in. verandah running round it on all sides. It is in shape like the letter H, the central bar consisting of an examination hall 42 ft. by 24 ft. and a room 15 ft. by 24 ft., which is ordinarily divided into two at the eastern end. The legs of the H each consist of two rooms 24 ft. by 18 ft. The building has a double roof, being provided with a Mangalore tile roof ceiled underneath. The verandah is roofed over, the eaves projecting 17 ft. over the coping and so affording protection from the sun at one season and the rain at another.

The whole is raised on a plinth of 2 ft. filled in with sand with a top dressing of concrete and cement.

The building is well ventilated by doors and windows and above the level of the verandah eaves are ventilating revolving windows. The double roof affords additional ventilation.

The rooms in the western leg of the H are, on the south, the slojd class room and, on the north, the headmaster's office. The slojd apparatus (tools, etc.) is kept in one of the small rooms east of the examination hall. The other small room is used as a masters' common room.

The number of students now attending is 26, the maximum being 36 — 12 in each year. This refers to stipendiary students only. The number of non-stipendiary students might equal the stipendiary class without causing overcrowding. The examination hall can seat 100 students. This hall is well lighted by doors and windows on either side. Dual desks with iron standards made in the local jail are used here. In the other class rooms desks 8 ft. in length with iron standards to seat three pupils are still in use. These will, however, be replaced by dual desks of European manufacture.

Training School, Silchar.

This building is intended for the reception of teachers and candidates for teacherships in vernacular middle and primary schools while under training.

The general plan of the building shows two wings, meeting at an angle of 120° of which the apex is an ornate entrance, leading into a small hall used as a museum. The left wing contains a small library (16 ft. by 12 ft.) and two class rooms (20 ft. by 18 ft.). The right wing contains a laboratory and a large class room (36 ft. by 20 ft.) intended for the primary teachers' class. As the front of the building faces north, there is no verandah. But the ends of the wings and the back are protected by 6 ft. verandahs. Doors (7 ft. by 4 ft.) and windows (situated about 3 ft. above the floor level) admit ample light and ventilation. The general design secures an ample through draught without taking up so much space in length as would be required if the rooms were all arranged in a single straight row.

The materials are typical of the "Assam building" which is likewise illustrated in the hostels. The plinth is of masonry. The rest of the building is of the "frame" type, consisting, in this case, of iron posts with tie-beams, which form a kind of cage. The wall and roof are of the lightest construction, and the former consists of mere panels set in the framework and plays no essential part in the actual structure of the building. These panels consist of a reed very commonly found in Assam and called *ekra*. The reeds are set upright in layers, the top and bottom ends being received in grooved battens. They are covered on both sides with a coating of mud, which is whitewashed. Such a wall is easily and cheaply constructed; it is fairly durable; and it affords a light and suitable filling for the spaces between the framework. Other materials are sometimes used for this purpose—whole bamboos, bamboo matting, or expanded metal covered with plaster. In this case a course of brickwork, 2½ ft. high, runs along the foot of the wall. This improves the appearance of the building and saves the *ekra* and mud walling from the effects of roof-drippings. The roof is of wooden shingles.

The general outline of this building, with its five pagoda-like turrets, gives it something of the air associated with Japanese architecture. Nor is it less pleasing in colour than in form. The red brickwork, white walls, chocolate coloured shingles and the copper covering of the central turret make a very bright picture.

Attached to the school are hostels, a house for the superintendent, ornamental and experimental gardens and a tennis court. The practising school, now situated at a little distance, will, it is hoped, soon be reconstructed within the compound. The cost of the main building was just below Rs. 16,000.

SILCHAR TRAINING SCHOOL, EASTERN BENGAL AND ASSAM.

HOSTEL, SILCHAR TRAINING SCHOOL.

Training School Hostel, Silchar.

This hostel is intended to accommodate the vernacular teachers and candidates studying in the training school. It consists of four blocks, each 80 ft. by 18 ft. and each provided with a detached cook house. These blocks are occupied by (1) high caste Hindus, (2) low caste Hindus, (3) Muhammadans, and (4) Manipuris.

Each block is divided by partition walls into eight rooms, each of which is 18 ft. by 10 ft. and accommodates three boarders. There is thus room for 96 boarders. Each room has a door and two windows. Light and ventilation are sufficient.

The plinth is of mud and two feet high. The walls (9 ft.) are of *ekra*, set in grooved battens plastered with mud and whitewashed. As is usual in Assam buildings these walls have no structural function, but are mere panels set into a frame (in this case of timber) designed to withstand earthquake shocks. The roof is of bamboo shingles. This consists of slabs of split bamboos, about a foot in length, arranged in layers on a framework of wood and bamboo. The superintendent reports that this roof affords full protection from heat and rain; and it is said to last some 8 or 10 years. There are dormer windows let into the roof which serve to improve ventilation.

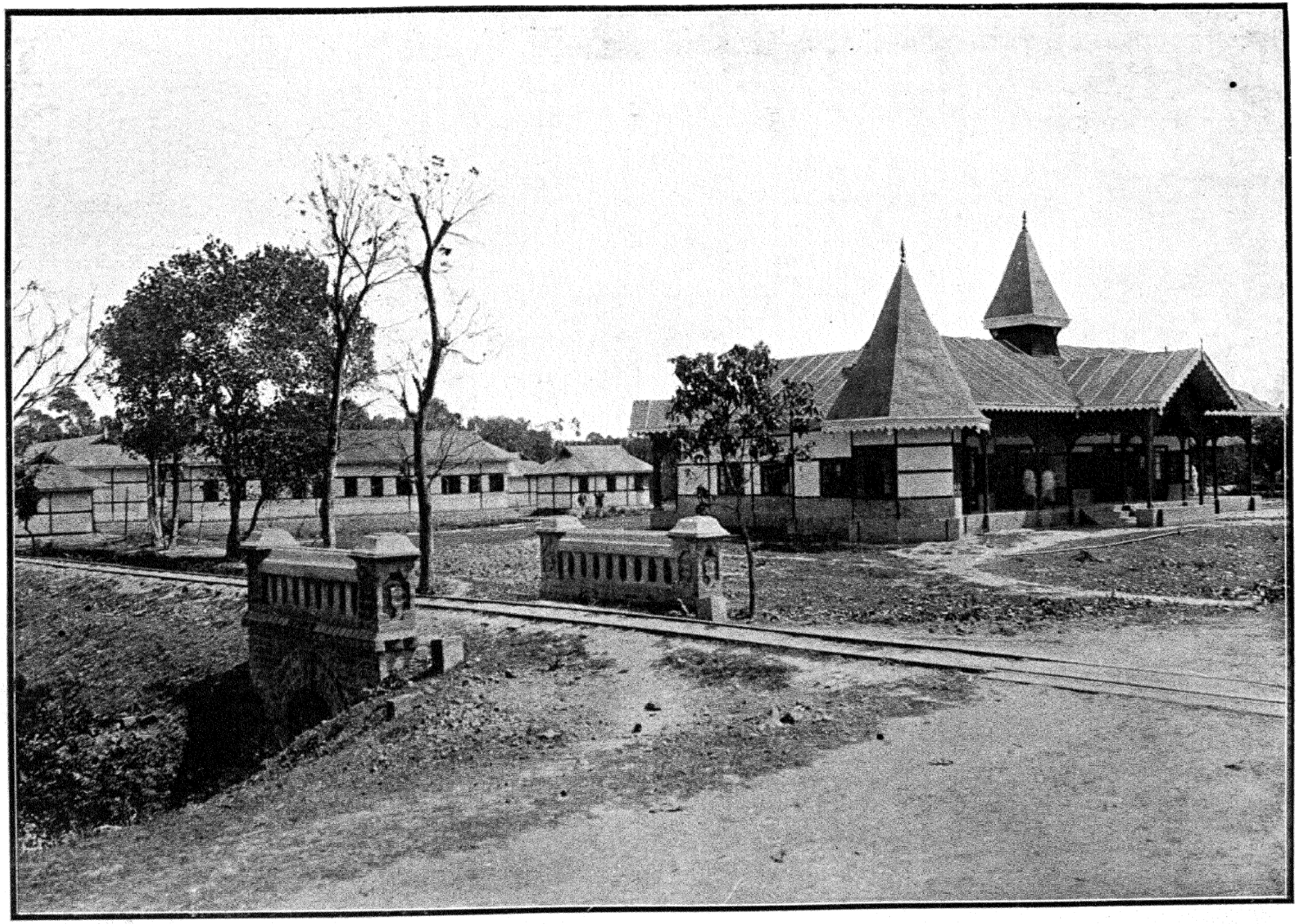
Besides cook houses and offices, the compound, which is about 3 acres in extent, contains a house for the superintendent of the training school.

A hostel of this type has the advantages of being easily and cheaply constructed — in this case, the total cost including outhouses and the residence of the superintending teacher having been only Rs. 11,000.

Training School, Jorhat.

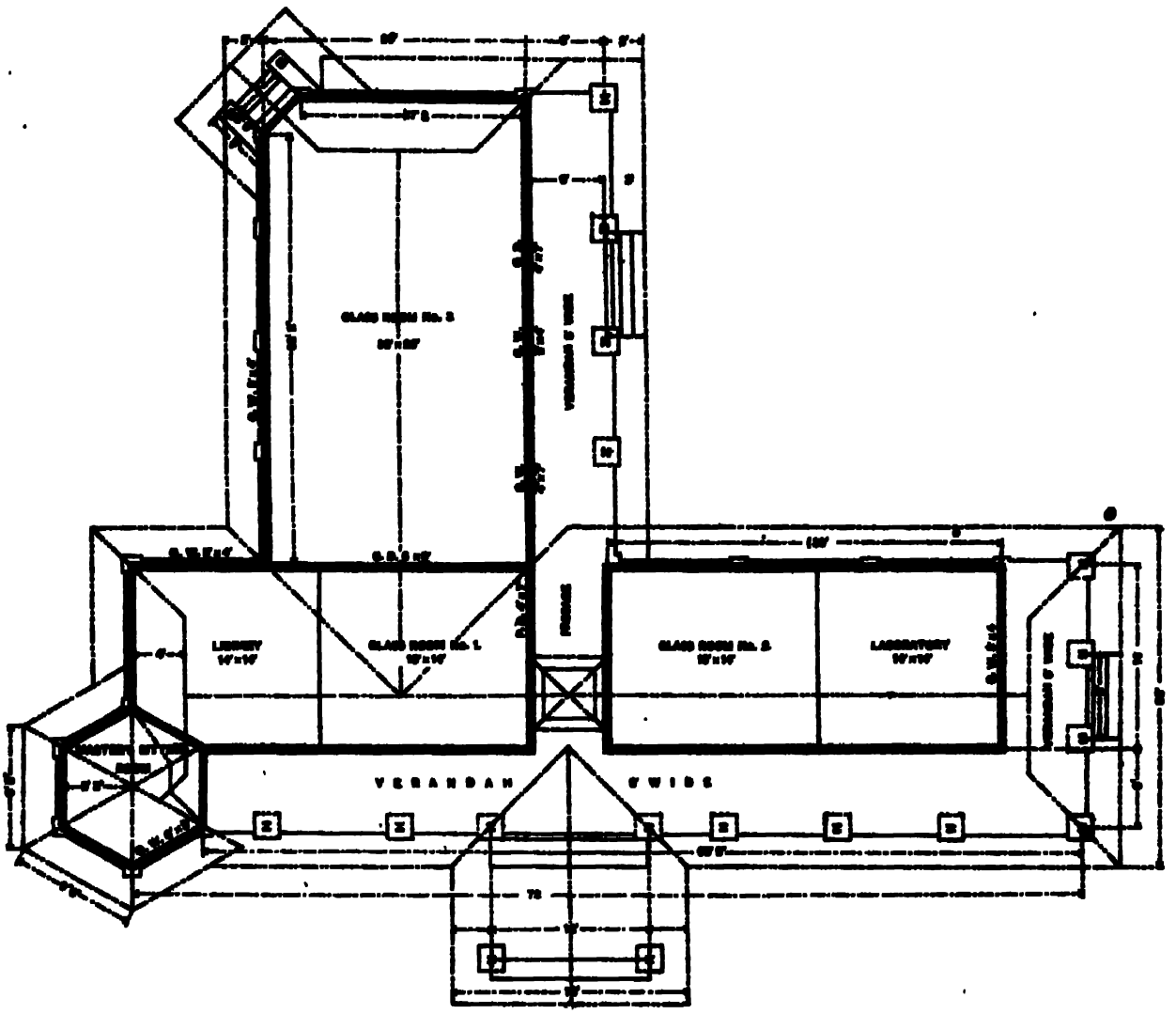
This is another building constructed for the same purpose as the school at Silchar of which a description has already been given. The accommodation provided is the same; but the rooms (as shown in the plan) are differently arranged. The southern and western fronts are protected by verandahs. But as the windows are built rather low down (2 ft. 2 in. from the floor level and 6 ft. 4 in. from the roof) the sun strikes into the rooms (a fault which is also observable in the school at Silchar) and curtains are required in the afternoon.

The main difference between this building and the other Assam buildings here depicted lies in the material of the roof. This, both in the main building and in the hostels (which are visible on the left of the picture) is of ruberoid, which affords a very neat roofing, but unless lined with a good ceiling does not give sufficient protection from the heat.

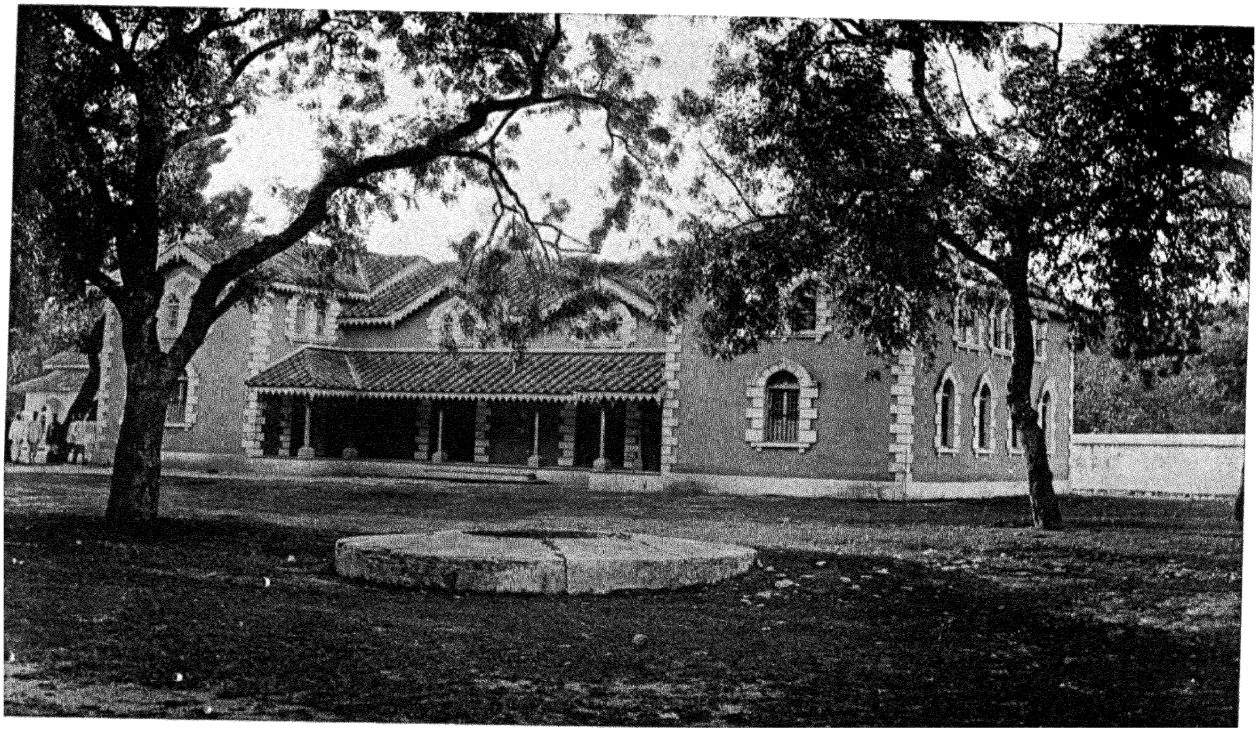


TRAINING SCHOOL, JORHAT, EASTERN BENGAL AND ASSAM.

TRAINING SCHOOL, JORHAT, EASTERN BENGAL AND ASSAM.



FRONT ELEVATION

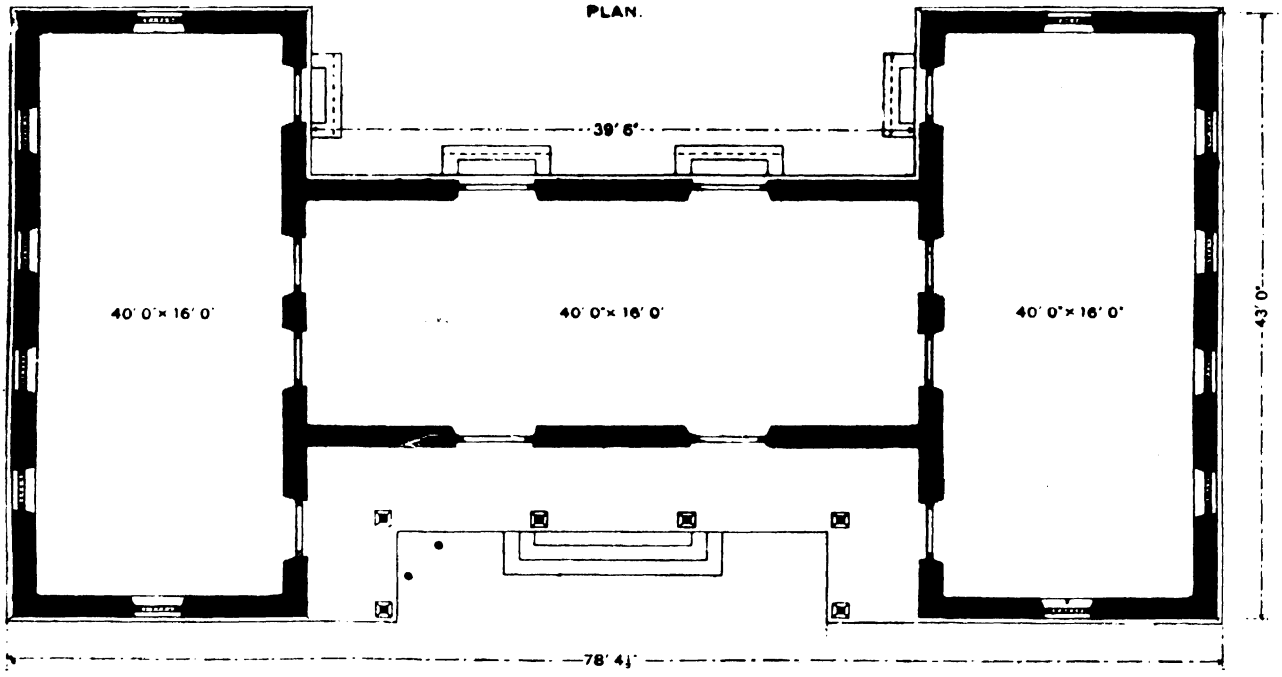


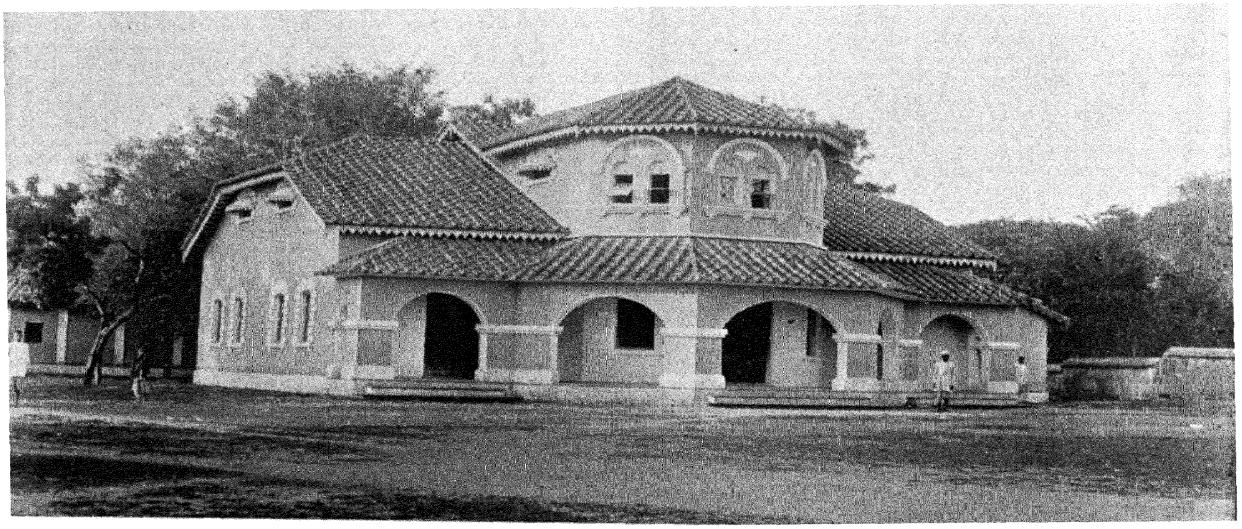
MODEL VERNACULAR SCHOOL
ATTACHED TO THE TRAINING INSTITUTION, JUBBULPORE.

Scale of Feet.

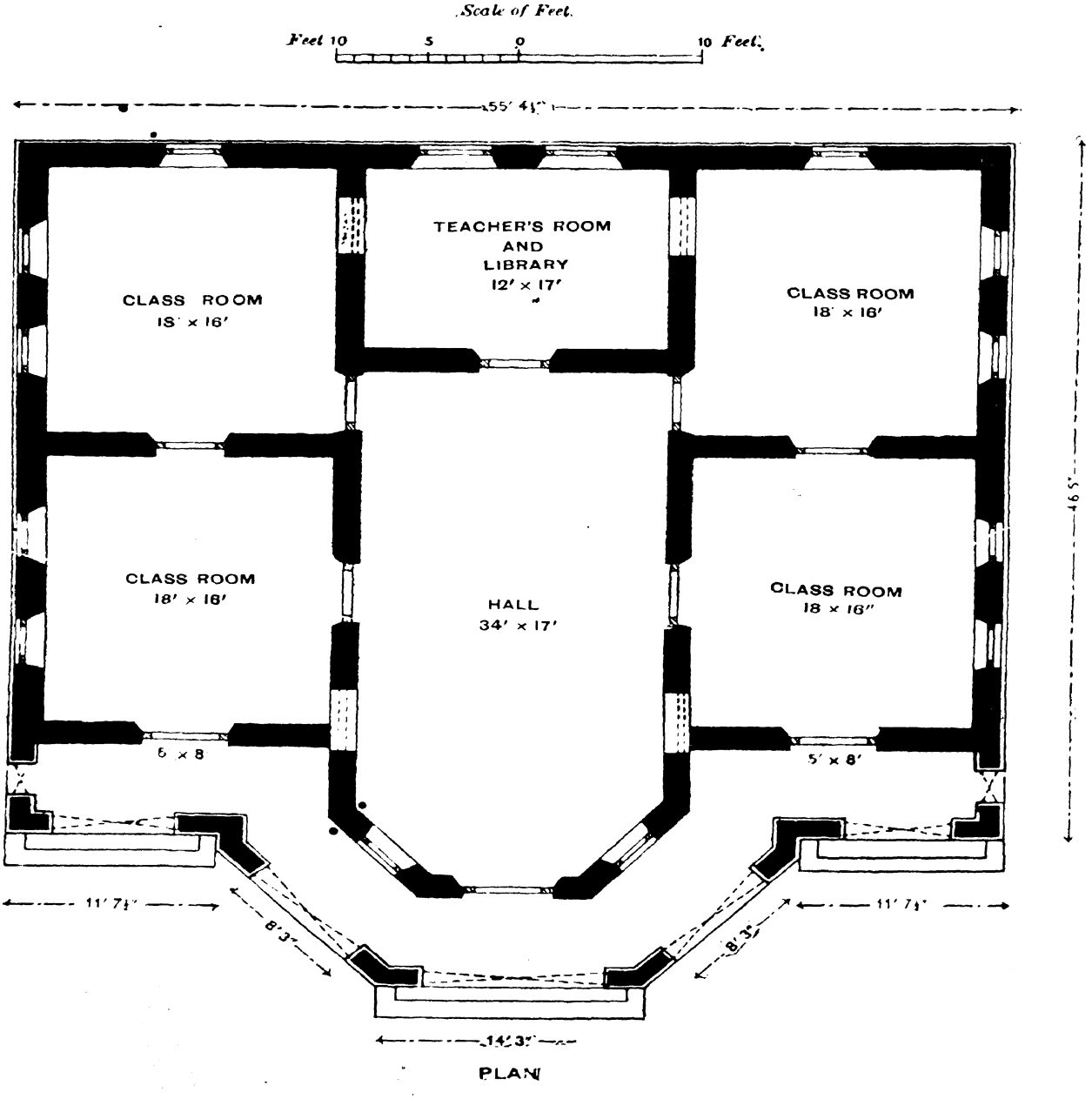
Feet. 10 5 0 10 *Feet.*

PLAN.

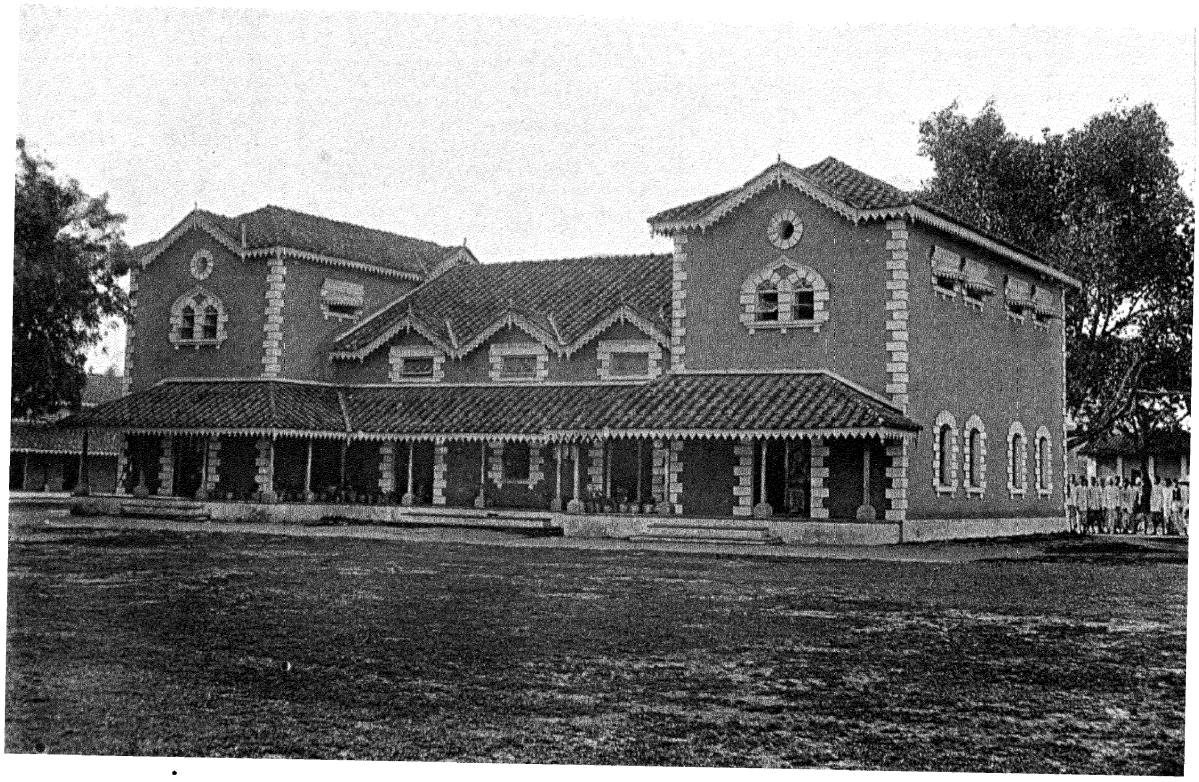




ENGLISH MODEL HIGH SCHOOL
ATTACHED TO THE TRAINING INSTITUTION, JUBBULPORE.

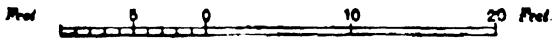


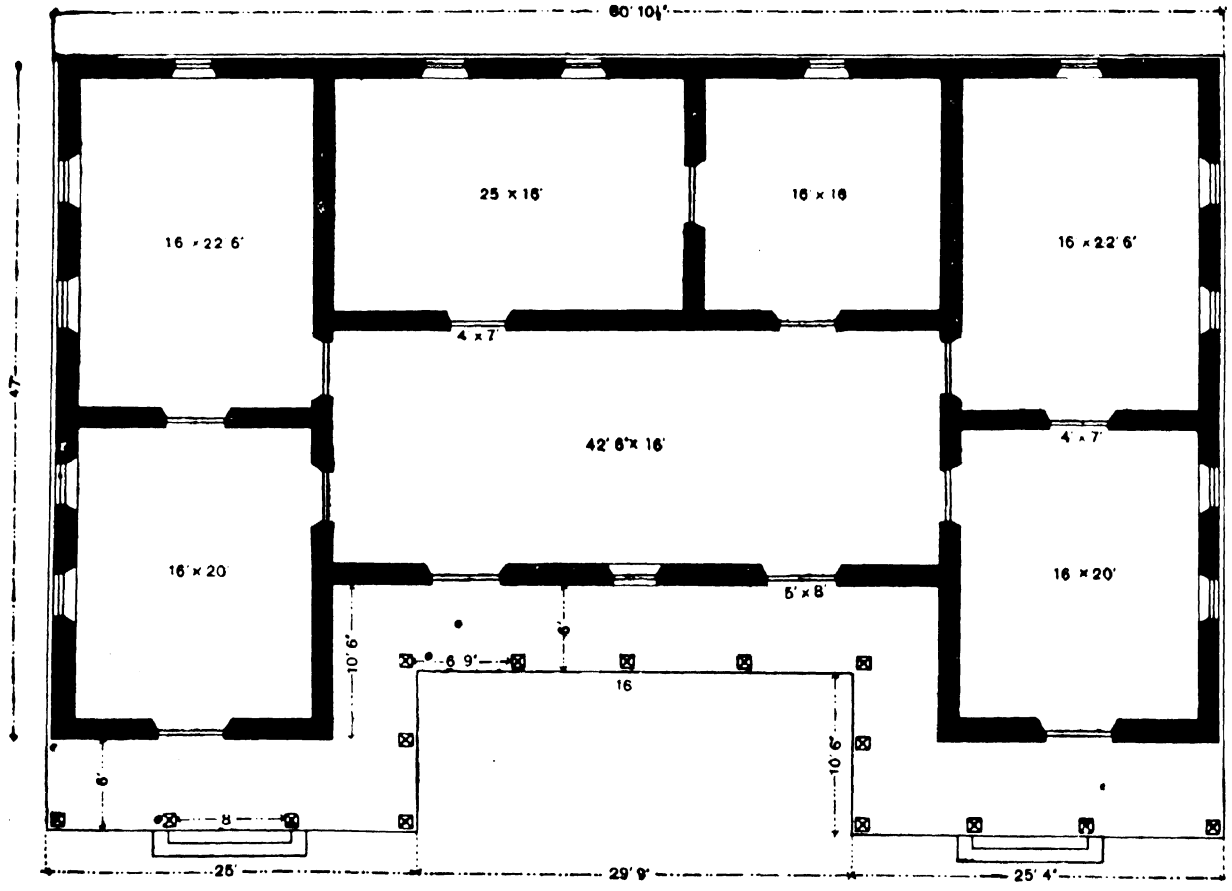
PLAN



GOVERNMENT TRAINING INSTITUTION, JUBBULPORE.

Scale of Feet.





Training Institution, Jubbulpore, and the Model High and Vernacular Middle Schools attached to it.

This institution consists of four departments under the supervision of the Superintendent, Training Institution, Jubbulpore. They are—(1) the English department, called the secondary and collegiate grade for the training of teachers for high and middle schools in the Central Provinces and Berar; (2) the primary grade department for the training of teachers for Hindi primary and middle schools; (3) model high school which serves as a model English school and a practising ground for students in the English department No. 1; (4) model vernacular middle school which serves as a model vernacular school and a practising ground for students in the primary grade department No. 2.

There is no separate building for the English or the secondary and collegiate department at present and the classes meet wherever there is any room in the building in which the primary department meets. But a new building has already been sanctioned for that department and it is expected that ere long suitable accommodation will be provided for this department also.

The three buildings face towards the south and there is an open piece of ground in front of them where students of several local schools are allowed by turns by the Field Games Association to play cricket and football matches. At the back are the mess rooms for the boarders and on the west are dormitories for about 120 students of the primary department. At the northern end of the hostel is the house of the resident master which, to suit the convenience of an Indian officer, is walled on every side. The primary department of the institution, which was formerly designated the Male Normal School, Jubbulpore, has been in existence here, though not in the same locality, for nearly 45 years. The collegiate and secondary department was transferred from Nagpur to Jubbulpore in January 1902, and both were brought to the present buildings in 1904. The model high school is of later growth. Formerly there was only an English practising school which consisted of a few classes and a small number of boys without a staff and was managed by the teachers under training. It gradually became larger and larger till it was made a high school in 1905 with a separate staff.

The vernacular model school was also raised to the status of the present standard, *i.e.*, vernacular middle, in 1907.

Jubbulpore is a convenient centre as a training ground for teachers in these provinces, for it has a healthy and temperate climate, being about 1,360 ft. above the sea-level, in the basin of the river Nerbudda. It is surrounded on almost all sides by hills, on the south and west by spurs from the Satpura Hills and on the north by the off-shoots of the Vindhya range.

The main building consists of four class rooms 22½ ft. by 16 ft. each and a drawing hall 42 ft. by 16 ft., a library and office room 25 ft. by 16 ft. and a retiring room for the superintendent 16 ft. by 16 ft. It has already been observed that there is no special room for the classes belonging to the secondary and collegiate grade which at present meet in any one of the rooms which happens to be vacant. Students are seated in four or five rows one after another as in a gallery room. Each row accommodates seven or eight boys. The desks are long, 11 ft. as a rule, with benches equally long and one set of benches and desks suffices for a row. Gangways 2½ ft. broad are left on both the sides of the room. In the drawing room a small desk and a stool are allowed to each student and some six students are seated in each row with a gangway in the middle.

The model high school building consists of a hall 34 ft. by 17 ft. in the centre, four rooms 18 ft. by 16 ft. each, two on each side of the hall and an office 12 ft. by 17 ft. at the back. Here too the students are provided with desks and benches, but the seats are arranged in a different order. They are placed in rows one after another but with a gangway in the middle; six desks are provided for each room, two for each row and four boys are allowed to sit on one bench, and so no more than 24 can be accommodated in a room.

The model vernacular school consists of three big rooms 40 ft. by 16 ft., one in the middle and the other two on the sides, each capable of accommodating two classes, and the whole building is arranged in the shape of the letter H. Two classes are accommodated in each room.

The total expenditure on these buildings has been about Rs. 50,000.

Government Training School for Mistresses, Coimbatore.

The school, built in 1904, is a single storeyed building facing south, and has a façade of 127½ ft. It is a spacious building consisting of four rooms with a main central hall. It is built in brick; the roof, which is trussed, consists of Mangalore tiles laid on flat tiles. The roof of the verandah is a pent one, carried on wooden posts. The flooring consists of Cuddapah slabs, a floor that is both clean and cool, and at the same time wears well.

A verandah 10 ft. wide runs all round the school. It is 9 ft. 6 in. high at its lower edge and rises at its highest point to 13 ft.

The main hall is 50 by 25 by 22½ ft. high, and the other four rooms, which are symmetrically situated with regard to the central hall, from which they are accessible, have each a floor area 25 ft. square.

The lighting is mostly through the doors which have glazed heads to them, and through a large dormer window in the main room. The building is well ventilated.

The main hall comprises more than one half the building and is used as a class room for the students in training, as well as for the morning and evening assemblies and drills.

The other four rooms are reserved for the junior students and each of them accommodates two classes.

At the back of the school are the tiffin sheds, recently constructed, for the use of the caste and Native Christian pupils.

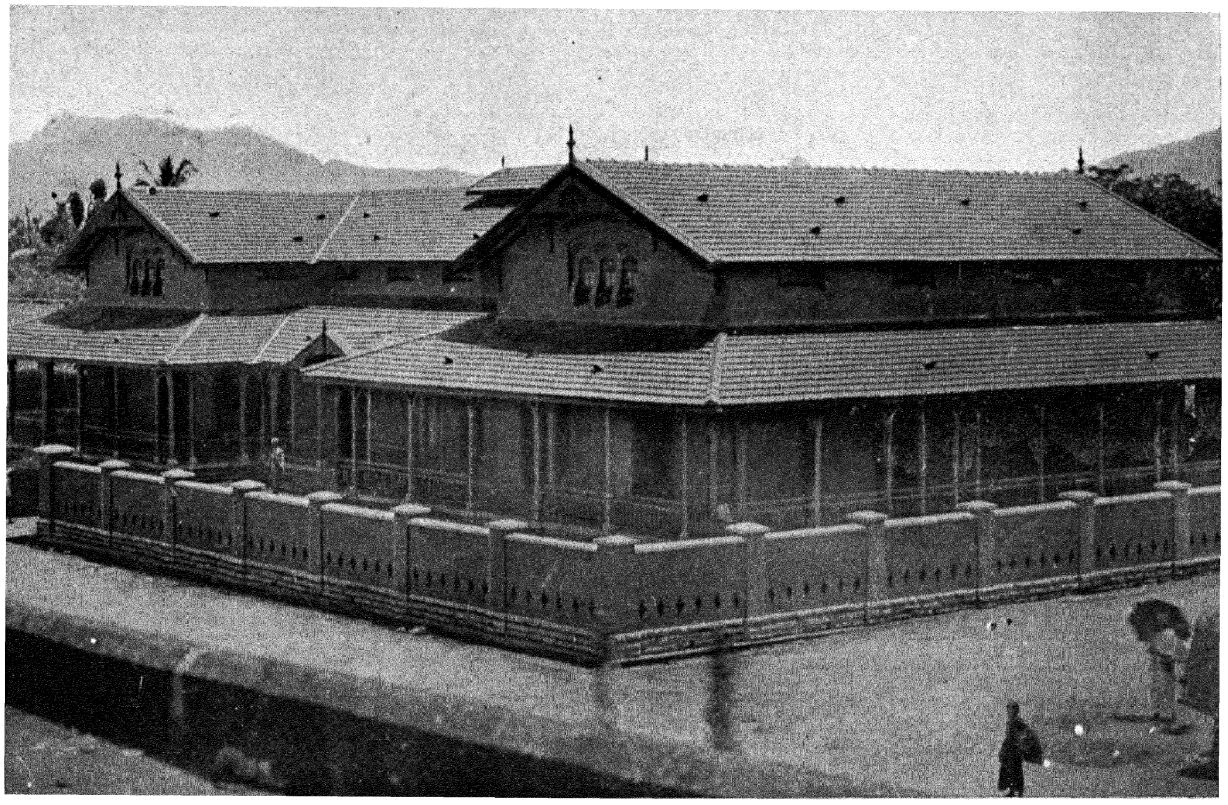
There is a compound all round the building enclosed by a brick wall 6 ft. high. The compound, which is not a very spacious one owing to the central position of the building and to the locality in which it is situated, does not allow sufficient playground accommodation for the students. Another inconvenience that is felt owing to the close proximity of the building to the compound wall, is that street noises are not altogether inaudible within the school.

The water difficulty universally experienced throughout Coimbatore is also present here. As no supply is laid on to the school, water has to be obtained from a considerable distance daily and brought to the school in water carts.

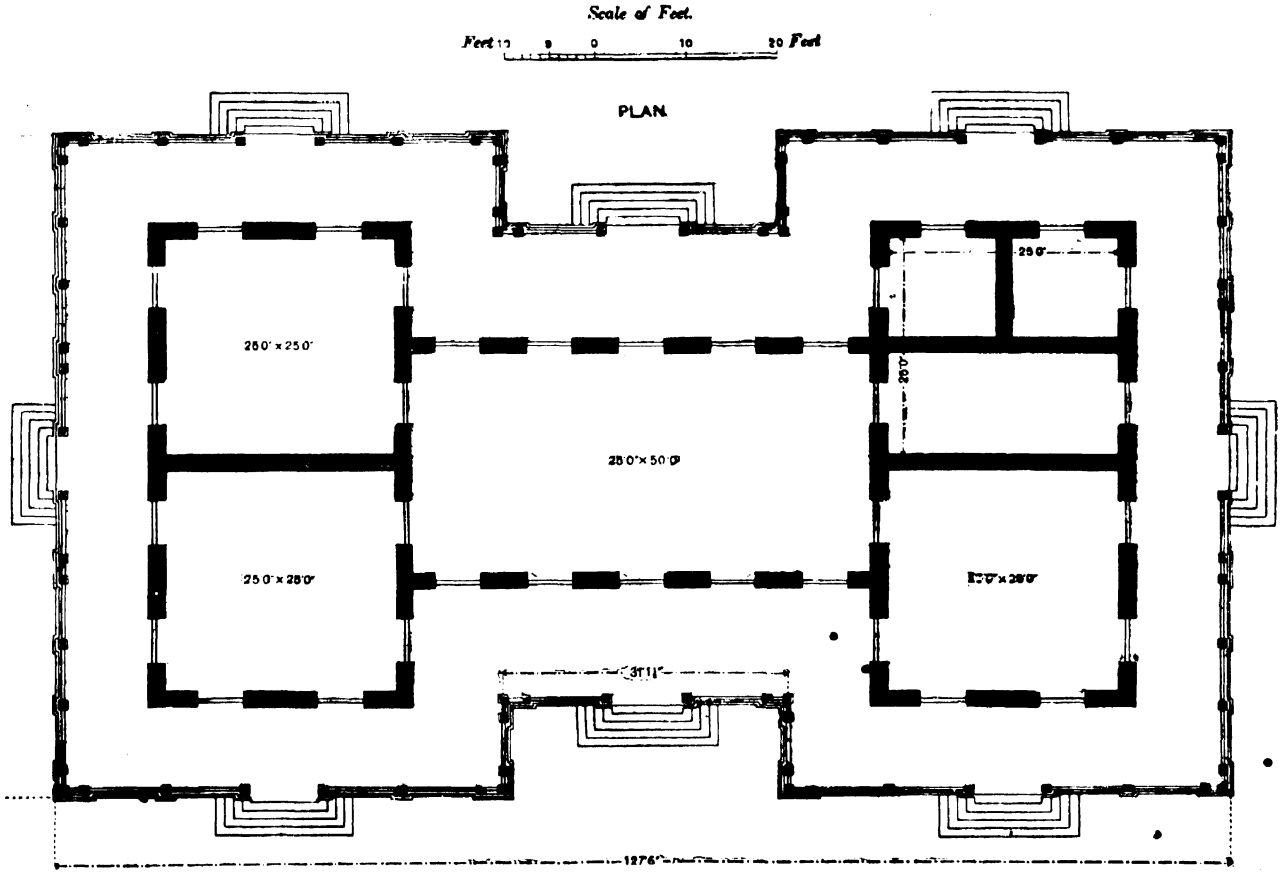
A small but ambitious museum adorns one corner of the main room and, owing to the endeavours that are made by all to augment it with small contributions, it promises soon to be quite an interesting feature of the school.

The building was constructed by the Public Works Department and designed by Mr. G. S. Harris, the late Consulting Architect to the Government of Madras.

The total cost of erection, including the outlay made in purchasing the site, was Rs. 43,579, while the amount expended on class furniture was Rs. 1,200. The cost works out to something like 4·47 c. ft. gross volume per rupee, or about Rs. 3-15-4 per square foot of plinth area.



GOVERNMENT TRAINING SCHOOL FOR MISTRESSES, COIMBATORE.



AMERICAN MISSION GIRLS' TRAINING AND HIGH SCHOOL, MADURA.

American Mission Girls' Training and High School,

This institution is located in a building specially built under the supervision of the ment engineer at a cost of Rs. 59,000. The foundation stone was laid by His Excellency Baron Ampthill, G.C.I.E., Governor of Madras, in March 5th, 1902. The building was completed and the school was transferred in January 1904 from the east gate to the present locality which was then given the name of Mangalapuram. The compound comprises an area of 10·37 acres. The site is well separated from the crowded part of the town and fresh breezes blow from across the cocoanut topes near the banks of the river Vaigai.

The school is a two storeyed building facing north. In the centre is a spacious hall 70 ft. by 28 ft. by 17 ft. used for general meetings and examination purposes. It is also divided by two rolling partitions (costing Rs. 750 each) into three rooms used by the training classes. On each side of the hall there are two rooms, of which three are used as class rooms for lower secondary classes and one on the eastern side as a library and reading room. Each room is 18 ft. by 16 ft. by 12 ft. In the eastern wing there are five rooms, of which the three middle rooms are used for high school classes, the northern end room for the science class, and the other room as an office. In the western wing there are four rooms which are used for classes of the model school.

The second storey has a large room 70 ft. by 28 ft. by 12 ft. 6 in. used as dormitory at night and for needlework classes by day, and 10 rooms of which two are used for class rooms and the other rooms for the lodging of students and school mistresses.

There are verandahs about 10 ft. wide all around the ground and first floor of the building.

The basement is more than 8 ft. deep, of dressed stone work and the walls are of brick and chunam.

The roof of the main portion of the building is of flat terracing supported on steel girders and wooden joists. The roofs of the wings are of tiled work. Good ventilation and lighting have been secured by means of doors, windows and ventilators.

The Practising school attached to the Mahalaxmi Training College for Women, Ahmedabad.

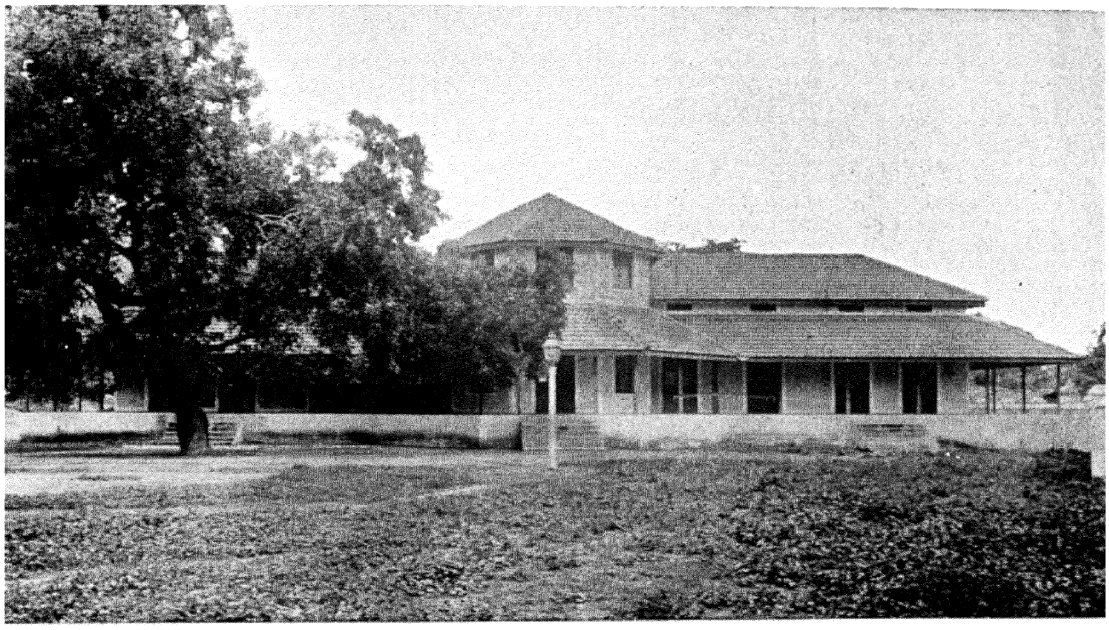
The practising school is situated to the south of the college buildings in grounds measuring 6,214 sq. yds., acquired at a cost of Rs. 19,636 and is walled off from the college grounds.

The building was completed in 1908 at a cost of Rs. 21,260, excluding the cost of the site It is single storeyed and arranged in an E shaped block with an 8 ft. verandah all round. The central block 48 ft. by 20 ft. on the inside is divided by a partition wall into a kindergarten hall 35 ft. by 20 ft. and an office 12 ft. by 20 ft. for the headmaster. The two wings, east and west each consist of three class rooms, one 16 ft. by 20 ft. and the two others 20 ft. by 18 ft.

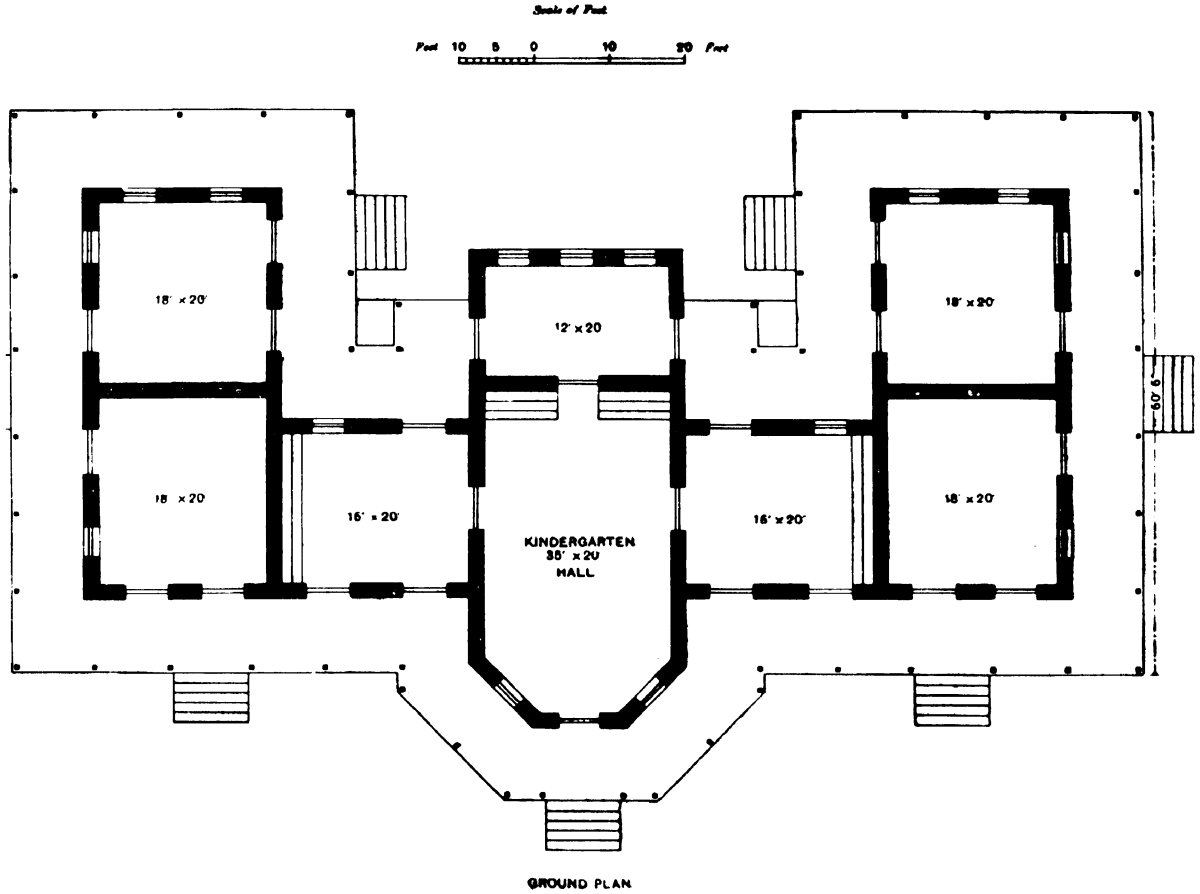
The school is built with brick and lime having a plinth 4 ft. high. The height of the central hall is 19 ft. and that of the wings 14 ft. up to bottom of tie beams. The floor of the wings, headmaster's office and verandah is of 1½ ft. Tandoor slabs laid diagonally over a 6 ft. concrete bed. That of the kindergarten hall is planked with teak planks 1½ in. thick. The roof over the main building is Mangalore tiled with cut teak trusses, cut teak purlins and ¾ in. teak boarding, while the verandah roof is Mangalore tiled with teak rafters and battens, without boarding.

The smallest of the three rooms in the western wing, opening out of the kindergarten hall, is used as the infant class room and is furnished with a gallery of two tiers along the west side. Of the other two rooms in this wing, one is used as the second standard class room and is provided with five benches placed in lines along the west side of the room, and the other is the fourth standard room and contains six Osborne desks placed two abreast on the south side. This room is also used for copy-writing by the whole practising school, as it is the only room provided with desks. Of the rooms in the east wing, the one opposite the infant class room is used for the first standard, and is like the infant class, provided with a gallery of two tiers along the east side. The other two rooms in this wing are used as the third standard and drawing rooms. The third standard room contains four benches placed in lines along the east side, while the drawing room is furnished with five desks arranged in lines facing northwards. The central hall is used for most of the drill and for kindergarten classes and when not so occupied forms the fifth standard class room, the children being accommodated on galleries of three tiers at the south end of the room. All the rooms are provided with wall cupboards, and all with the exception of the hall, infant and first standard rooms, have wall blackboards—in these latter however there is no suitable wall accommodation.

Part of the verandah on the south side is trellised off to form a water room, and is provided with a water tap and a raised platform for the water pots.



PRACTISING SCHOOL ATTACHED TO THE
MAHALAXMI FEMALE TRAINING COLLEGE, AHMEDABAD.

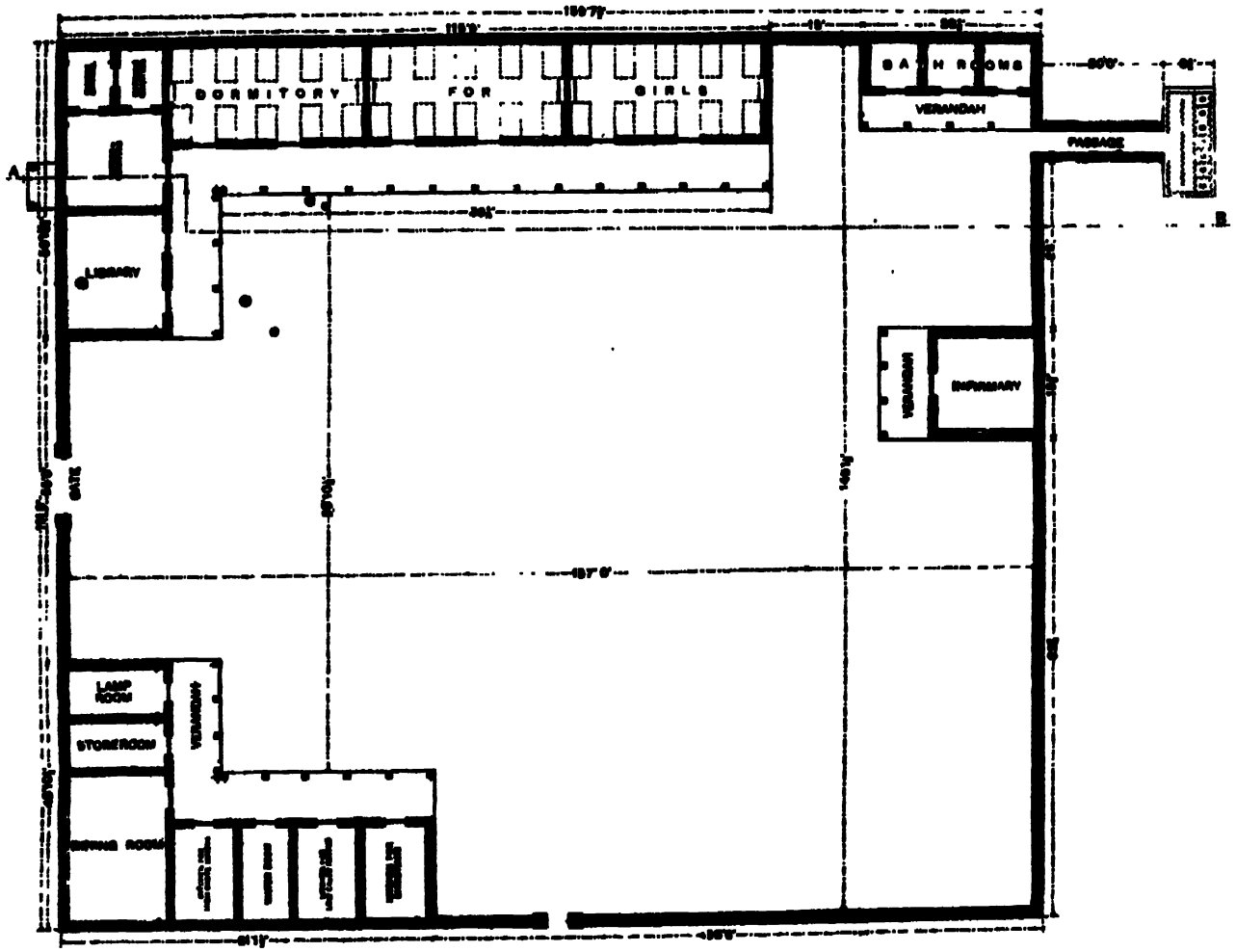


GROUND PLAN

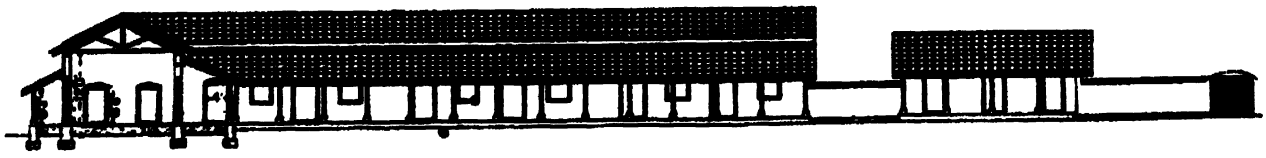
HOSTEL FOR FEMALE
NORMAL SCHOOL, AMRAOTI.

Scale of Feet.

Feet. 10 5 0 10 20 30 40 50 Feet.



SECTION ON AB



Hostel for the Female Normal School, Amraoti.

This institution is located in a fine open and well drained locality south-west of the Amraoti camp. The hostel comprises the following buildings — main building, containing a library 30 ft. by 16 ft., three dormitories 31½ ft. by 16 ft. for 30 students and quarters for the matron; block of three bath rooms; infirmary 16 ft. by 16 ft.; block containing three kitchens for Christians and high and low caste Hindoos; with water, dining, lamp and store rooms; common latrine of seven compartments.

These buildings are in a quadrangular form measuring 151 ft. 9 in. by 115 ft. 9 in. external measurements.

The hostel for married women is quite separate from the above and contains accommodation for six, each having a bath and cook room attached with a common latrine of three compartments. This building measures 63 ft. 4½ in. by 44 ft. 9 in. externally.

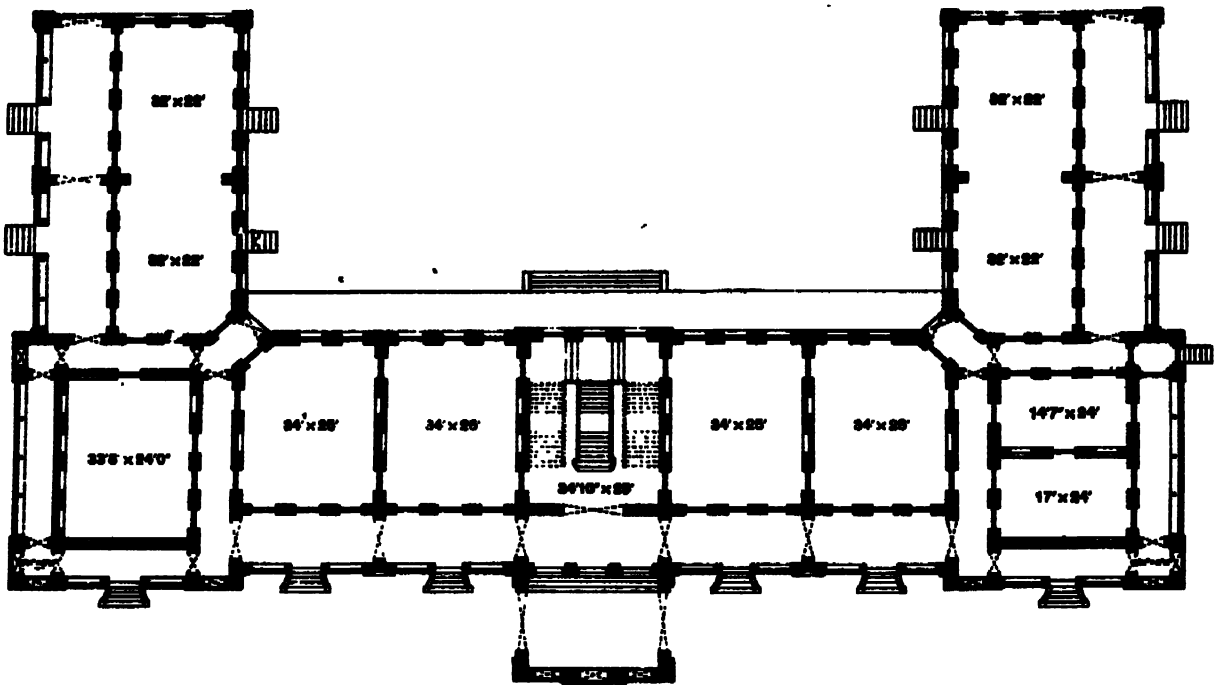
The two hostels together with the lady superintendent's bungalow and outhouses are situated on a plot 4½ acres in extent with wire fencing all round.

A well in the compound provides for an independent water supply.

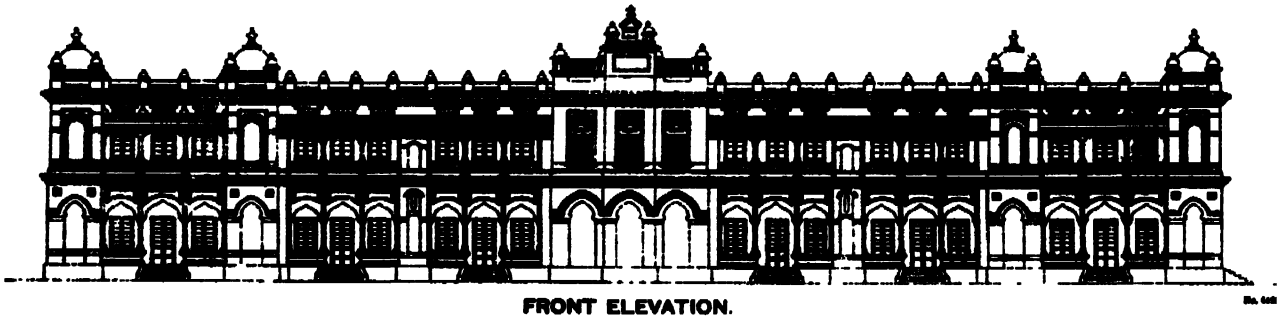
The hostels were completed in the year 1907 at an approximate cost of Rs. 25,000 and the well in 1908 at a cost of Rs. 1,100 approximately. These amounts exclude the cost of lady superintendent's quarters and the wire fencing. The normal school is built in the suburbs of the city at a distance of about 1½ miles.

TECHNICAL INSTITUTIONS

BIHAR SCHOOL OF ENGINEERING, PATNA.



PLAN.



FRONT ELEVATION.

The Bihar School of Engineering, Patna.

The Bihar School of Engineering owes its origin to a fund raised by the residents of Bihar to commemorate the visit of the Prince of Wales (Edward VII) to India, in 1875. It was formed by the amalgamation of the Patna Survey School with the Bihar Industrial School and the present building was erected at a cost of Rs. 1,20,500 from the fund abovementioned. It was formally opened by Sir John Woodburn in the year 1900.

The school occupies an open and spacious site on the south bank of the river Ganges. The area of the compound in which it is situated is nearly 9 acres; the buildings cover over three-fourths of an acre.

The main school building is erected on a 2 ft. plinth and faces south. It is a double storeyed structure of red brick with two single storeyed wings at the back. The lower floors are paved with stone and those in the upper storey with slate; the roof is a terraced one supported on steel joists. There are verandahs 12 ft. wide on three sides of the building supported by Saracenic arches and light cast iron columns. On the ground floor are nine rooms; five measuring 34 by 25 ft. and used for the physical laboratory, model room, lecture theatre and library respectively, and two smaller rooms each 24 by about 16 ft., used for the general office and principal's room. The two single storeyed wings accommodate the drawing halls: each measures 64 by 22 ft. and seats as many as 50 students for drawing, and 100 for examination purposes. A central staircase gives access to the upper floor on which there are eight rooms similar in size to those beneath them on the ground floor. Five are used as class rooms, the two smaller ones as a store for surveying apparatus, and a dark room, and the room over the portico, measuring 25 by 20 ft. is used as a masters' room. Each of the class rooms can seat comfortably 50 students.

All the rooms in the building are well lighted, lofty and airy, and punkahs are seldom found to be necessary.

The workshop, situated to the east of the main building, is built of brick, and measures on plan 200 by 70 ft. The roof is of corrugated iron which makes the shop an excessively hot place in which to work during the summer months. Interior partition walls divide the building into three portions, *viz.*, the main workshop, the blacksmith's shop, and the engine room. The main workshop is furnished on one side with carpenters' benches to accommodate 60 students, and the other side is used as a fitting and machine shop. One central line of shafting runs through this shop and is supported on wrought iron 'A' frames on brickwork foundations.

The students' hostel is situated to the west of the main building. It comprises three wards placed on three sides of a quadrangle, the fourth side of which is open and looks out on to the river. Each ward contains five large rooms measuring 32 by 16 ft., and each room accommodates eight students. The out-buildings comprise the superintendent's quarters and office, the cook houses, sick room, servants' godowns and electric light generating house.

The old building originally used for the Patna Survey School is at the north-east corner of the compound and now forms a residence for the principal. Quarters for a European foreman instructor have been erected to the south of the workshop.

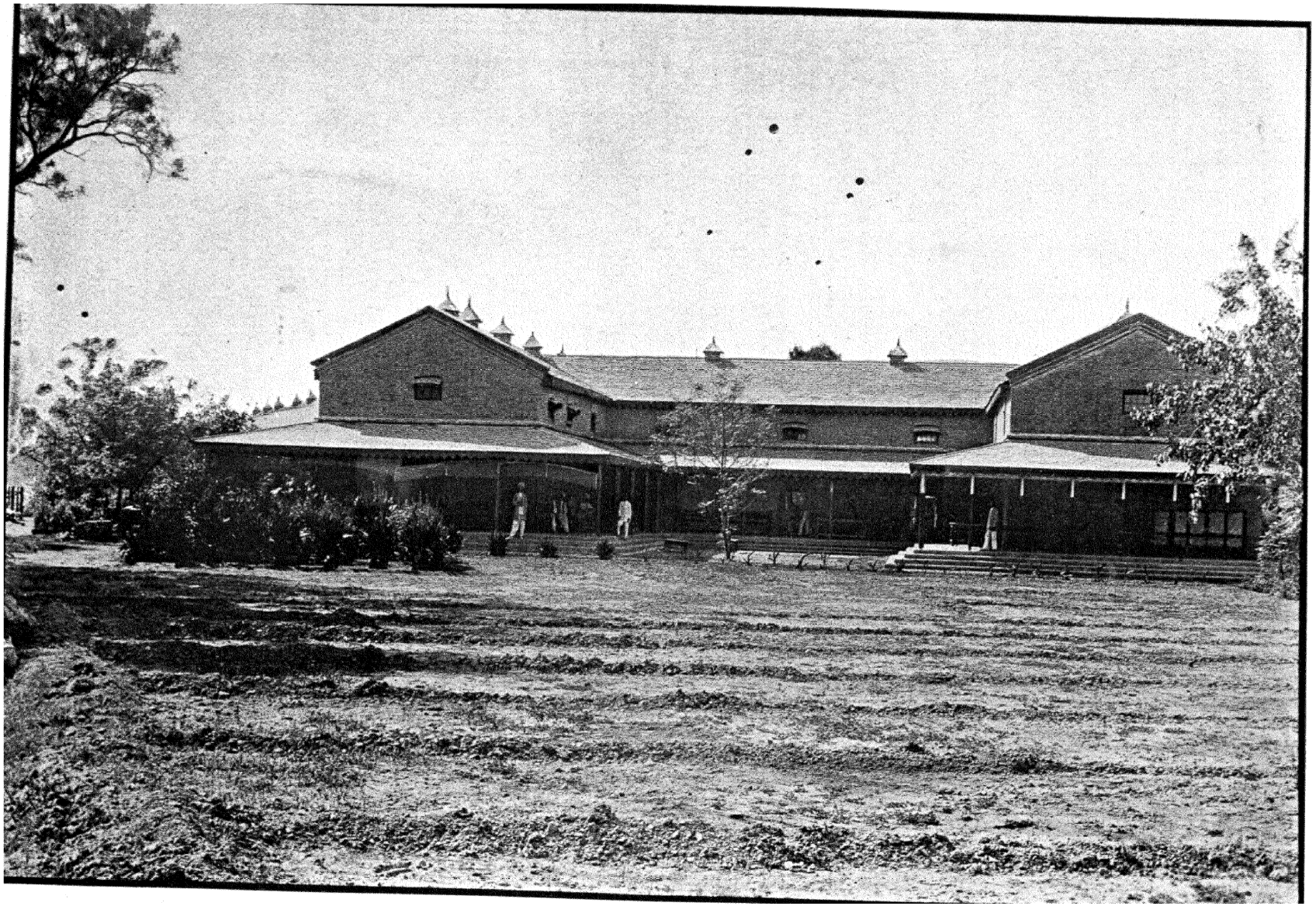
Punjab Veterinary College, Lahore.

This institution was started in the year 1882, and at that time consisted of one bungalow, a forge and about 12 stables, in quite a small compound, situated in Anarkali near the city of Lahore. The bungalow was used as the residence of the house surgeon, one room being reserved as a museum and lecture room, and one as an office.

The site has gradually extended until at the present time it consists of an area of about 10 acres. From time to time, as requirements demanded, new buildings have been erected. These now consist of four lecture rooms, each about 25 ft. by 35 ft., fitted with rising tiers of benches to accommodate 100 students. A museum, a library, offices for principal, professors, and clerical staff. A practical pharmacy room 30 ft. by 60 ft. An operating theatre 30 ft. by 45 ft. An outdoor clinique shed 45 ft. by 65 ft. A dispensary 16 ft. by 24 ft. A bacteriological laboratory 20 ft. by 26 ft. A second smaller laboratory. A dissecting room 60 ft. by 65 ft., to be shortly extended by adding another room 30 ft. by 45 ft. A dog hospital to accommodate 30 in-patients, in separate kennels, complete with its own operating room and dispensary. A post-mortem house 25 ft. by 40 ft. About 60 separate stalls for horses. A forge with two fires. Residential quarters for three native professors and 15 menials.

All these buildings are well situated, intersected by grass plots and on high ground near the city.

VETERINARY COLLEGE, LAHORE.



GOVERNMENT TECHNICAL SCHOOL, LAHORE.

Railway Technical School, Lahore.

e resolution passed by the advisory committee on technical education appointed by the Government, the railway technical school was opened in February 1889 behind the general railway stores and remained there for about three months. Meanwhile iron sheds were erected and for about three years classes were held in them. These arrangements were found unsatisfactory and it was decided to erect a proper school building. The work was entrusted to the railway and Rs. 10,000 was provided. The work was badly done and was described as cheap and nasty. It was then decided to erect a permanent building and entrust the work to the railway. The total cost came up to Rs. 45,420, but this was reduced by making over the temporary school to the railway at a valuation of Rs. 5,700. In January 1892 the present permises were occupied.

In 1902-03, a machine room, a room for wood turning and a godown were provided. In 1906-07 four new rooms were erected. The Public Works Department register shows that the total cost on the buildings, etc., up to date has been Rs. 1,45,626.

The school consists of three barracks and a godown. The roofs are sloping, slate-coloured, and the temperature under the roof in the hot season is sometimes unsuitable to the kind of work to be done in them, but good light and ventilation have been provided. The isolated position of the barracks though making the supervision difficult is advantageous so far as the noise of the workshops does not in any way disturb the workers in the other rooms.

Barrack No. I facing the railway station consists of office, show room, room for keeping science apparatus and science room, each measuring 18 ft. by 24 ft. The science room has a gallery (which can accommodate 40 boys) with a table for science experiments in front. There is a drawing room 54 ft. by 20 ft. having space for 50 boys for teaching freehand and geometrical drawings. There are also two teaching rooms and one for drawing (for elementary work) each measuring 18 ft. by 24 ft. accommodating 30 boys; and a drawing room 114 ft. by 24 ft. (divided into two equal portions for model and scale drawings). The front verandah of the model drawing room is used for keeping old parts of machinery given by the railway.

The godown 60 ft. by 20 ft. on the north (in line with the servants' quarters) is divided into two equal portions, one of which is occupied by the school for the blind.

Barrack No. II south consists of three big rooms, each being divided into two rooms by sliding glazed partitions. Each of the three small rooms measuring 22½ ft. by 20 ft. accommodates 30 boys, while each of bigger ones 31½ ft. by 20 ft. has room for 40 boys. This barrack is used for general education.

Barrack No. III west has four rooms. The 2nd and 3rd wood-working masters have rooms of 50 ft. by 20 ft. and 54 ft. by 20 ft. dimensions accommodating 30 and 35 boys respectively: while the 1st wood-working master's room 54 ft. by 20 ft. can accommodate 35 boys. The room for wood turning 18 ft. by 20 ft. has space for the lathes of 16 boys and is rather small for the growing numbers. The fourth room measuring 54 ft. by 20 ft. having provision for 25 children is occupied by the 2nd iron-working master; while the shed at the back 36 ft. by 30 ft. having space for the working of 15 boys is fitted with forges, etc., and is under the charge of the 1st iron-working master. In this barrack the boys work on carpenter's and smith's benches and the teacher has his table in the middle of the room.

The school has no playground of its own but one just at the back of the barrack No. III has been kindly lent by the railway.

The buildings are at the distance of a quarter of an hour's walk from the railway workshops for which boys in this school are chiefly prepared.

Victoria Jubilee Institute (Central Museum), Lahore.

This building owes its origin to the liberality of the public who raised the funds to commemorate the Jubilee of Her Late Majesty, Queen Victoria, Empress of India. The foundation stone of this building was laid by His Royal Highness Prince Albert Victor in 1890. It was opened to the public in 1892. The opening ceremony was performed by Sir Dennis Fitzpatrick, Lieutenant-Governor, and in connection with it, an exhibition was held in 1893.

The institute contains a museum and a lecture hall, facing north, with a frontage 350 ft. long, and is situated alongside the School of Art and separated from it by a carriage portico, which serves for both. It has a marble entrance double storeyed with a cloak room on each side. The flooring is also of marble and it is surmounted by turrets with lanterns covered by domes. The steps leading to it are also of white marble and the ceiling is of carved deodar panels in geometrical pattern. There are two staircases, one on each side of the entrance door which open into the galleries and on to the roofs. The vestibule is three storeyed, with galleries, the railings of which are of wooden geometrical pattern (pinjra work). The vestibule is crowned with a dome with a lantern on the top. In the inside the vestibule is decorated with pendants in plaster work (galubkari work) and painted in oil colours. It has a pinnacle 70 ft. high from the plinth. In the entrance hall are exhibited specimens of fine arts and it is decorated on the south by oil paintings of the Mughal style. From this open out two archways adorned with works in plaster of Paris with peacocks on the top. These archways lead into two rooms, one for raw products and the other for works of art and manufactures. The centre portion of the room where the raw products are exhibited has a marble floor of geometrical pattern and the rest of the room is floored with Tarraki stone slabs.

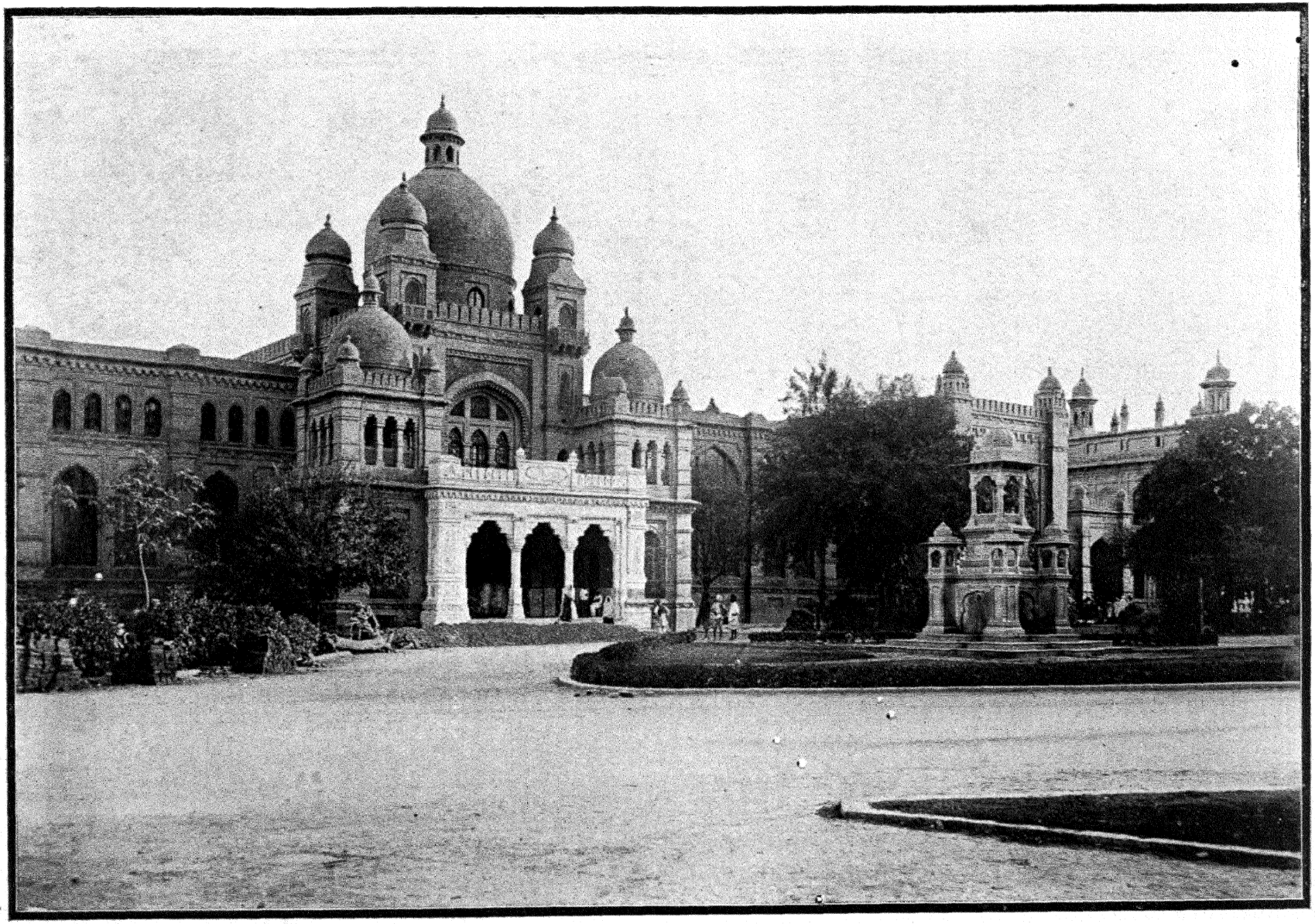
The saw-tooth roof of the building is supported on cast iron columns. The lighting of the rooms is principally derived from nine large windows facing north and placed 6 ft. above the plinth.

On the east there is a similar room for arts and manufactures which leads into the sculpture gallery by an archway decorated with work in plaster of Paris. A library and an office terminate the building on the east.

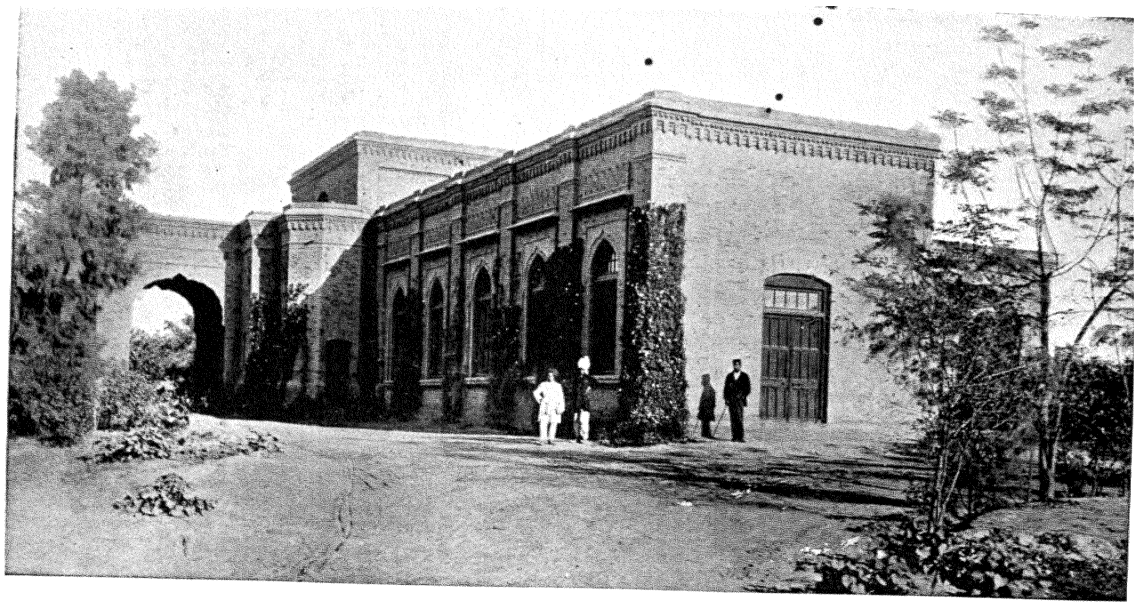
The plinth area of the building is 37,500 sq. ft. and the cost about Rs. 5 per square foot. It has nine rooms of the following dimensions :—Entrance hall 98 ft. by 40 ft., vestibule 20 ft. by 20 ft. by 70 ft., raw products room 100 ft. by 60 ft. by 25 ft., sculpture gallery 60 ft. by 30 ft. by 40 ft., office and library 60 ft. by 28 ft. by 25 ft., each cloak room 20 ft. by 11 ft. by 18 ft. The two rooms given up to the School of Art for repoussé and blacksmith classes are 18 ft by 30 ft. by 25 ft.

The lecture hall is 30 ft. by 60 ft. by 40 ft. with a wooden gallery, entrance to which is by a winding staircase in the entrance hall. To the west of this hall is a room set apart for storing slides and for the preparation of gas for the working of the lantern.

On the whole the building is commodious, well-lighted and ventilated and an ornament to the city. A handsome drinking fountain is in front. It is of red sandstone and cost Rs. 3,438 and is surrounded by a well laid out garden.



CENTRAL MUSEUM, LAHORE.



VICTORIA DIAMOND JUBILEE
HINDU TECHNICAL INSTITUTE, LAHORE.

The Victoria Diamond Jubilee Hindu Technical Institute, Lahore.

This institute is located in buildings specially built for it at a cost of Rs. 44,160 by the public funds, and special grants by the Punjab Government.

The foundation stone of the main building, which is most conveniently situated, being quite close to the railway station and not far from the city of Lahore, was laid by His Honour Sir W. Mackworth Young, K.C.S.I., Lieutenant-Governor of the Punjab, in the year 1900, and the building was completed and opened in 1902. The main building measures about 178 ft. by 96 ft. and consists of a hall about 50 ft. by 30 ft. used for lecture and examination purposes. There are two wings, one to the east and the other to the west of the hall. The wing to the east consists of two rooms measuring respectively 22 ft. by 20 ft. and 46 ft. by 20 ft., one used for lectures and the other for the working of the carpentry class. The wing to the west of the hall has also two rooms measuring 22 ft. by 20 ft. and 46 ft. by 20 ft., one used as the office of the principal and library, while half of the other room is used for lectures and the other half as office of the school and the managing committee, the division being made by a wooden partition. There is a verandah at the back only, about 12 ft. wide, with two rooms on both sides of the hall each about 12 ft. by 12 ft. by 16 ft., one of them being used as dark room for photographic work and the other as a store room. There are two more rooms near the main entrance opposite to each other, each about 10 ft by 7½ ft., one is used as store room and the other as bathroom for the principal. The basement of the main building is more than 2 ft. high in the front and about 1 ft. at the back. The walls are all of *pucka* bricks and the floor is paved. The roof, which is of flat terracing throughout, is supported on steel girders and wooden joists. On the whole the institute commands a good view, facing both north and south, and has its main entrance with a carriage portico on the north. Good ventilation and light have been provided throughout by means of a number of large doors, windows and ventilators. Owing to want of funds, the towers upon the main entrance have not yet been built.

There is also a building measuring about 144 ft. by 76 ft. for the machine, smithy and foundry shops respectively, towards the west of the main building. The machine shop consists of three rooms, *viz.*, the large room, measuring about 40 ft. by 25 ft. being used for the working of different kinds of machinery, and the two smaller ones, each respectively about 25 ft. by 23 ft. and 15 ft. by 12 ft. at both ends of the big room, are used as engine rooms, *viz.*, one for the oil engine, and the other for a steam engine. The smithy, measuring about 116 ft. by 18 ft., is located next to the steam engine room, and a room at the end of the southern side, about 18 ft. by 16 ft., is used for smithy and fitting purposes, and the boiler is also placed in it. The big room of the machine shop is covered with tiles, and the roofs of the other two rooms at both ends of the machine shop, and that of the smithy, which are of flat terracing, are supported on steel girders and wooden joists. The foundry, measuring 55 ft. by 30 ft., is next to the smithy. The roof of this is covered with corrugated iron sheets, and is supported on iron trusses. In front of the smithy and foundry there is a compound measuring 102 ft. by 55 ft. In the middle of this there is a tank measuring about 24 ft. by 14 ft. by 10 ft. deep and a well about 10 ft. deep and 7 ft. in diameter which supplies water to the steam engine.

Towards the east of the main building, at a distance of about 140 ft., there is a boarding house which consists of 16 rooms, each about 20 ft. by 12 ft. by 14 ft. Of these, 11 are occupied by 44 students and five are used as quarters for menial servants. Towards the south of the boarding house there are four more quarters for the sweeper, gardener, etc. The roofs of these rooms and quarters, which are of flat terracing, are supported on steel girders and wooden joists. There is also a ground, measuring about 300 ft. by 150 ft., in the rear of the main building towards the south, which is used for sports.

Mayo School of Art, Lahore.

This school was established in 1875 to perpetuate the memory of the late Earl of Mayo, Governor General of India, 1869—1872.

The building is an imposing structure of the Moghal style, overtopped by turrets. It was designed by Rai Bahadur Ram Singh under the supervision of Mr. J. Lockwood Kipling, C.I.E., then principal of the school.

The lower storey consists of three wings. The wing facing north consists of a show room, 31 ft. by 18 ft., an office room, 24 ft. by 15 ft., a principal's room, 28 ft. by 24 ft., a room of the vice-principal, 24 ft. by 15 ft., and a room for the draftsmen class, 31 ft. by 18 ft. The whole of this wing is 18 ft. in height.

The upper storey, which is built over the office and the principal's and the vice-principal's rooms, contains a large hall, 63 ft. by 24 ft., and is at present used by the students of the Government School of Engineering, Lahore.

This wing is very well lighted by means of large windows specially designed to give light from the north so essential in an Art school.

The wing facing west consists of class rooms, for elementary tuition, 39 ft. by 31 ft., for geometrical and model drawing, 39 ft. by 28 ft., and for carpentry 39 ft. by 28 ft. This wing is 30 ft. in height and is lighted by sky-lights.

The wing to the south consists of a room for modelling and plaster work, 46 ft. by 28 ft. by 30 ft., and a room for painting, 28 ft. by 18 ft. by 18 ft.

This wing is separated from the west wing by a passage and is lighted by large windows facing north.

A verandah runs all along the inner side of the building and the south wing has a verandah on the south face.

At the east end of the passage dividing the south wing is a dark room for photography. In the verandah to the south there are two small rooms provided for preparing plaster of Paris and clay. There are also three godowns to the west end of the south verandah. Between the modelling and painting rooms there is a double storeyed room for storing of models, etc.

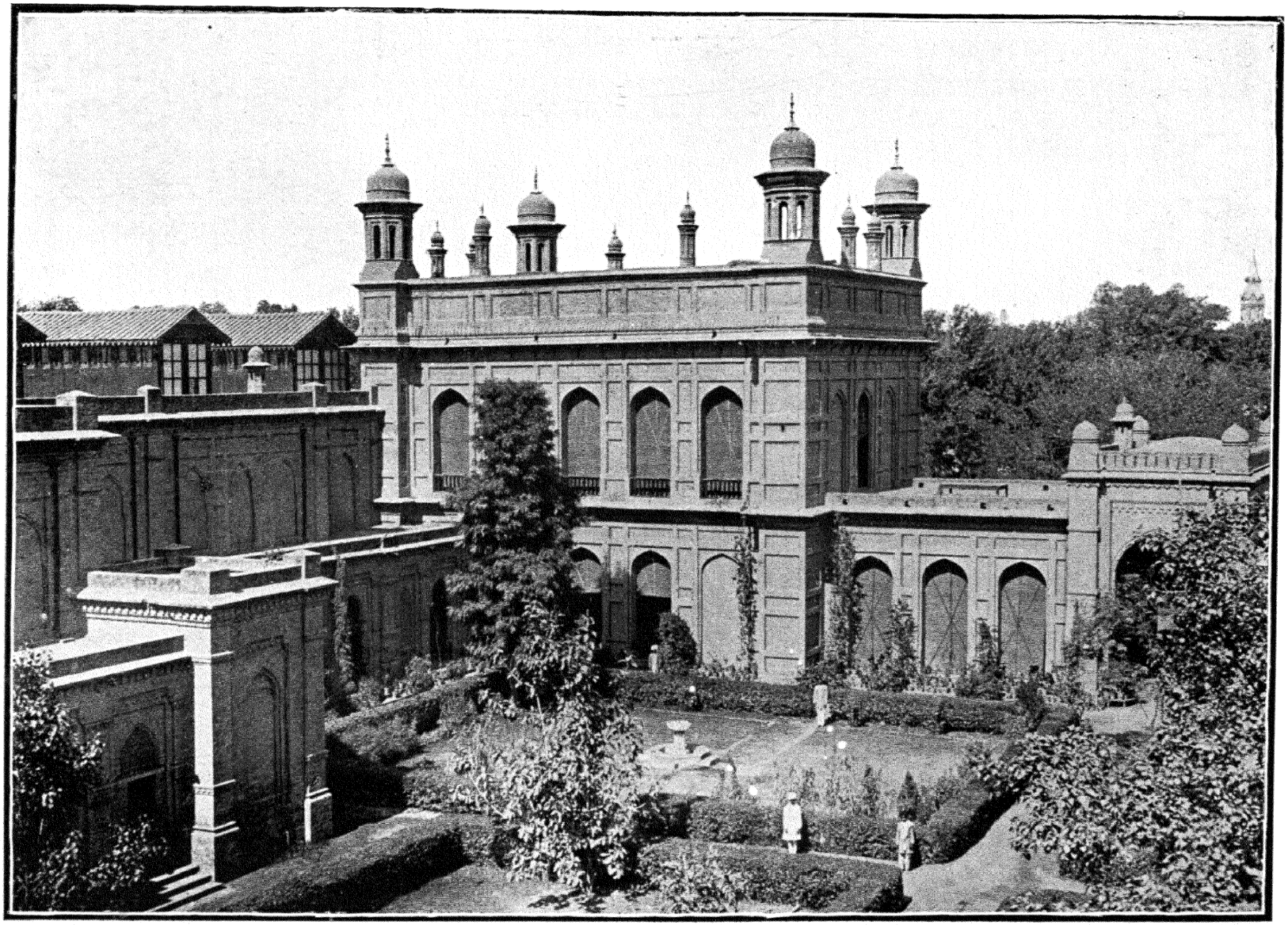
The repoussé and blacksmith classes of the school meet in two small rooms at the back of the lecture hall of the Victoria Jubilee Institute which can be regarded as a part of the School of Art.

The School of Art building has a plinth area of 20,100 sq. ft. and its approximate cost was about Rs. 1,10,000.

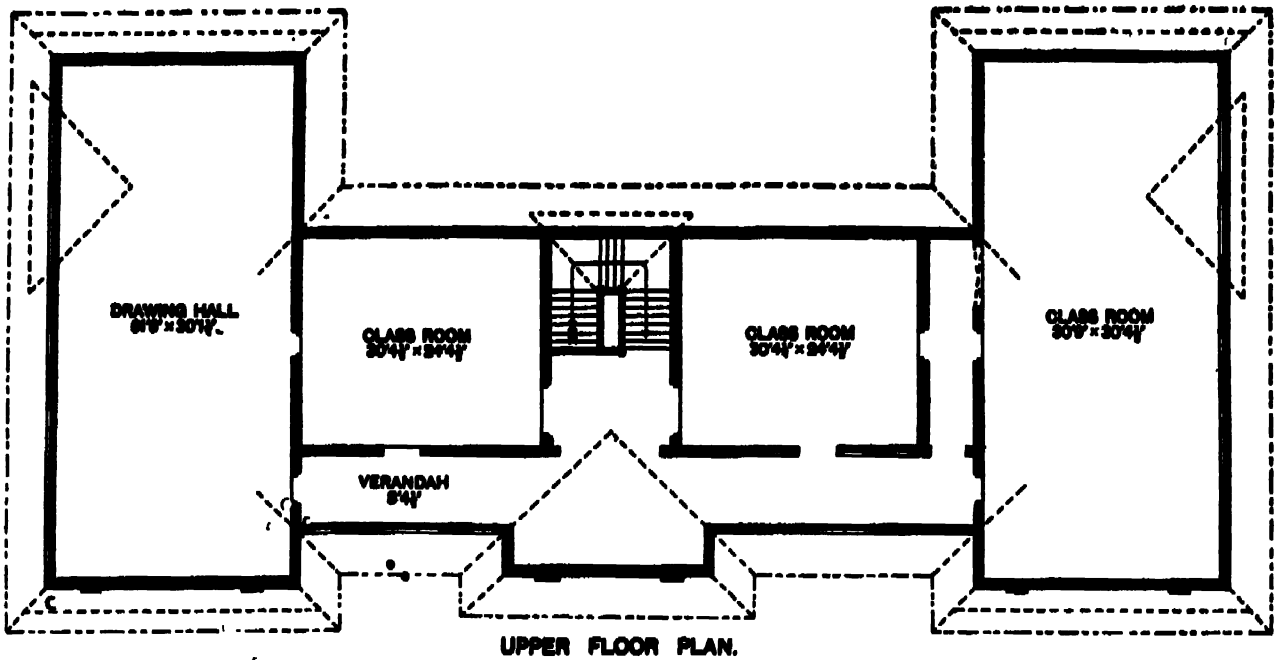
The school was in great need of suitable workshops, for which land measuring 1 acre, 1 rood, and 17·8 poles has been acquired at the back of the school, but for want of funds these have not yet been put up and in the meantime the ground is used for physical exercise by the boys. When the workshops are erected, another site for a playground will be necessary.

On the whole the building commands a good view facing north and west and has its main entrance with a carriage portico on the north, the drive to it from the main road being through a small well kept garden. It is also very centrally situated, close to all the principal public buildings and in a very healthy spot.

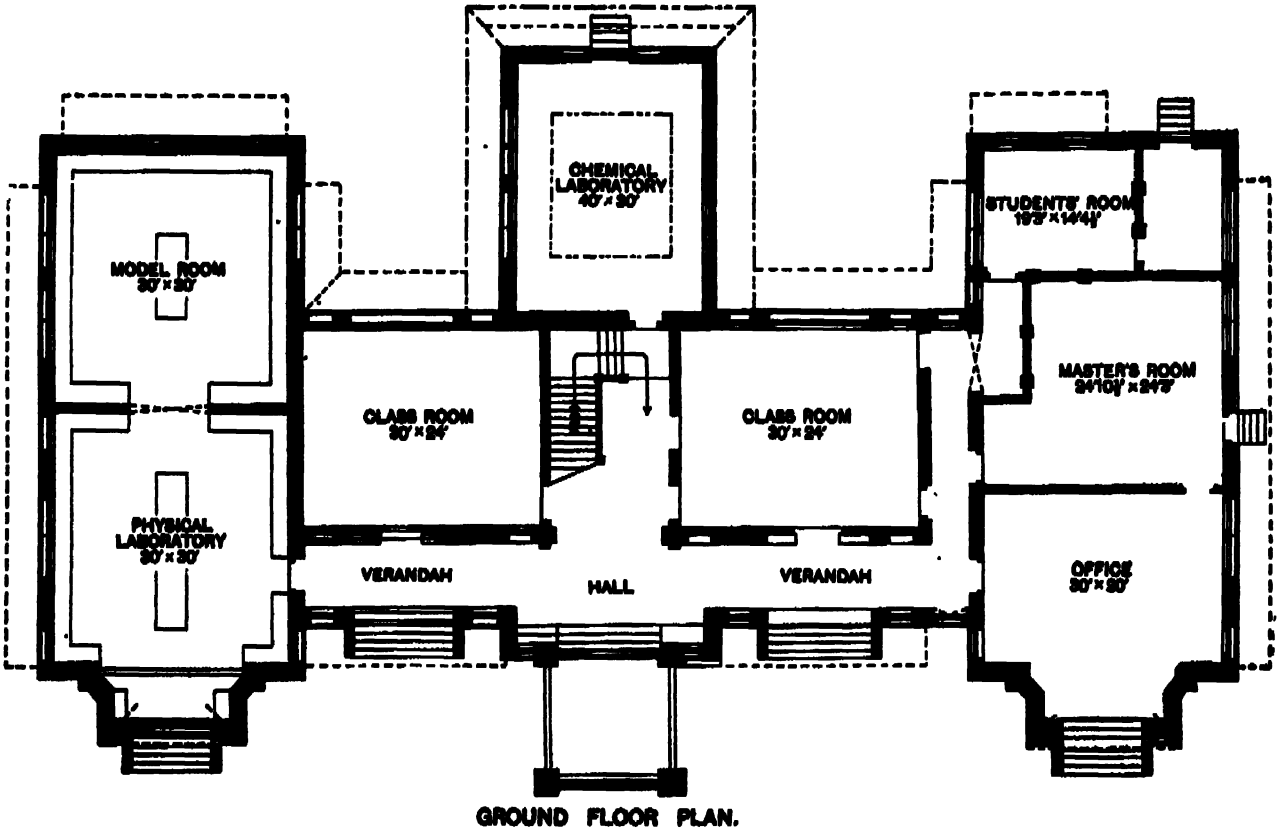
In the open space between the three wings is a marble fountain for drinking purposes, designed by the present principal.



MAYO SCHOOL OF ART, LAHORE.

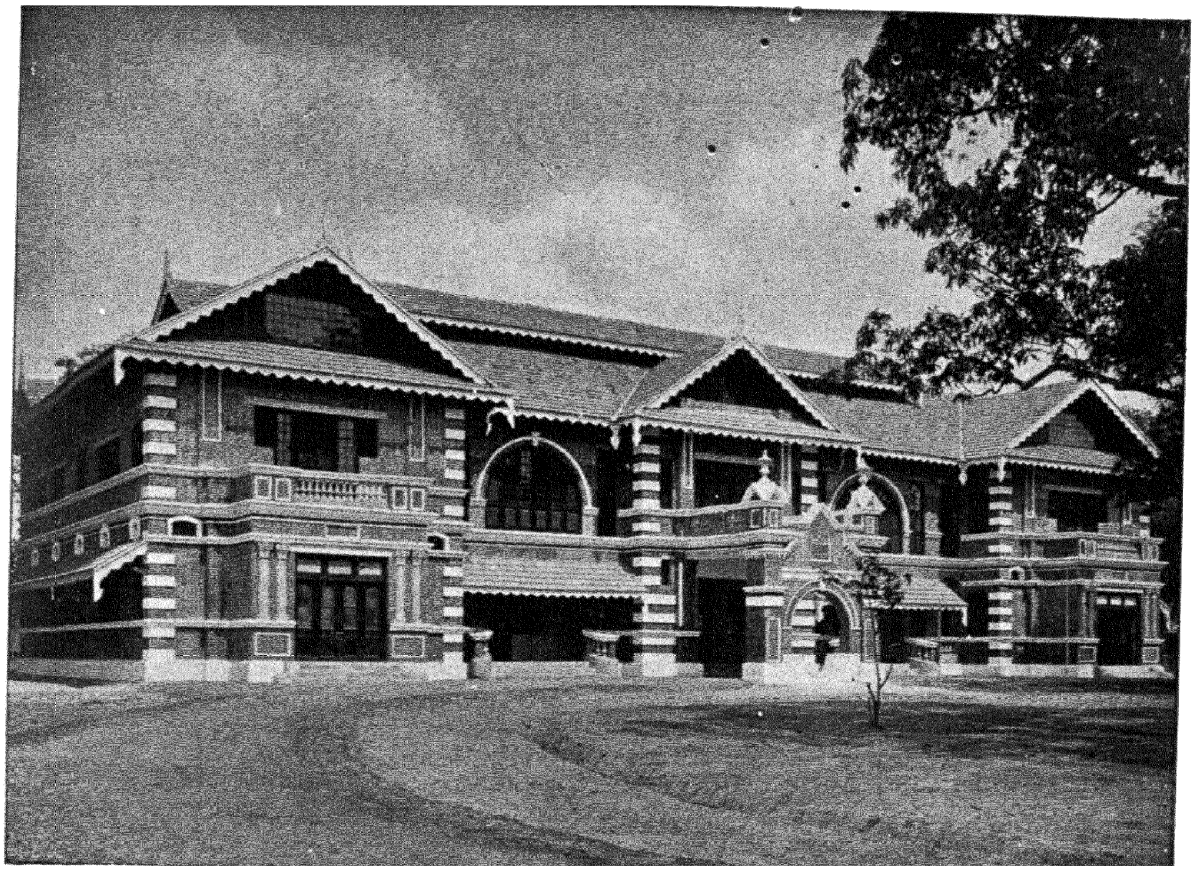


UPPER FLOOR PLAN.



GROUND FLOOR PLAN.

GOVERNMENT SCHOOL OF ENGINEERING, INSEIN, BURMA.



GOVERNMENT SCHOOL OF ENGINEERING, INSEIN, BURMA.

Government School of Engineering, Insein.

This school, situated some 10½ miles from Rangoon, consists of three large brick buildings, namely, the main buildings, the hostel, and the workshops, with smaller annexes, and quarters for the staff. They are all detached, with large and shady open spaces around each. They were completed in March 1907, at a cost of about Rs. 2,20,000 (including machines, fittings and apparatus).

The main building has a façade of 140 ft. It is two storeyed, well supplied with fresh air and light, and contains two verandahs (each 80 ft. by 8 ft.), two halls (each 61 ft. by 30 ft.), two class rooms (each about 30 ft. by 25 ft.), a physical laboratory (30 ft. by 30 ft.), a chemical laboratory and dark room (40 ft. by 30 ft.), an engineering laboratory (30 ft. by 24 ft.), a lecture room (30 ft. by 24 ft.), an office (30 ft. by 20 ft.), conveniences, etc.

The hostel is a two storeyed building, well ventilated and lighted, and resembling the main building in style. It has a façade of 108 ft., and contains two verandahs (each 60 ft. by 8 ft.), four dormitories (each 50 ft. by 24 ft.), four smaller rooms (each 26 ft. by 24 ft.), and conveniences, detached from it; and about 100 ft. away is a bath house (40 ft. by 20 ft.).

The workshops contain a carpenters' shed (80 ft. by 30 ft.), and engine and boiler room (55 ft. by 30 ft.), machine shops (55 ft. by 50 ft.), a smithy (35 ft. by 25 ft.), godowns, etc.

The laboratories are well equipped, and the workshops are fitted with a horizontal condensing steam engine, 18 I. H. P., and boiler, and a number of machines, planer, drills, lathes, etc., of up-to-date patterns.

A tube-well (worked by compressed air) supplies sufficient water of an excellent quality. The grounds occupy nearly 40 acres, in parts beautifully wooded.

Ahsanullah School of Engineering, Dacca.

The building in which the school is located is situated on the Ramna to the north of Dacca proper. The building has been specially constructed for this institution by Government at a cost of about Rs. 85,372 and was completed in the latter part of the year 1906 and taken over by the educational authorities in November of the same year. The locality is free from the bustle of the bazaar. The school shares its compound and playground with the Dacca college, a fine group of buildings in the Saracenic style. The compound is spacious and is surrounded by a wall with 6 ft. iron railing bordered on the east and north by the main roads of the new civil station, which is just now under construction and with the fine new Government House to the north separated from the school building by a 90 foot road.

The building is double storeyed with two projecting wings on east and west measuring about 80 ft. by 25 ft. each. The whole building is about 180 ft. long and 80 ft. broad.

The lower storey consists of four equal-sized rooms in the two wings measuring about 34 ft. by 22 ft. each, two of which are used as class rooms with seats for about 60 students, one as a science laboratory and the other as mechanical laboratory and model room. In addition to these, there are seven other rooms, three of which, each measuring about 25 ft. by 25 ft., are used as office, library and common room for students and teachers respectively. The remaining four, being smaller, are utilised as headmaster's office, head clerk's office and store rooms for survey instruments, etc.

The upper storey, which is at a height of 16 ft. above the lower, consists of two rooms in each of the two wings, measuring 34 ft. 5 in. by 22 ft., and two spacious halls which measure 57 ft. 5½ in. by 25 ft. The rooms in the wings are used as class rooms with arrangement of seats for 60 students in each, the two halls being used for drawing rooms and for examination purposes.

The building has terraced roofing and terraced flooring, and the roof is supported on steel joists and tees. There are 10 ft. verandahs in both storeys to front and rear.

The class rooms in the wings of the school building are all well lit, being provided with four 5 ft. by 7 ft. 6 in. windows each. The latter are double, venetian and glass, so that even on a rainy day, there is no trouble about light. The distance from floor to sill is 2 ft. 4 in. and from lintel to ceiling 6 ft. 2 in. in every case. The rooms in the centre of the building are not satisfactory for they are shut in on two sides and the other two are obscured by 9 ft. verandahs; the only light, therefore, is that which passes through the 7 ft. 4 in. by 3 ft. 10 in. door openings, which are spaced 15 ft. apart, centre to centre. The rooms are, however, very cool. The building, from its construction, is more or less fireproof and water could be taken from a tank at a distance of 30 ft. in case of emergency. No special arrangements have, therefore, been made for fire prevention.

The outside appearance of the building, which is of pointed brickwork, relieved here and there by plaster and by a shoja cornice which runs completely round it at the first floor ceiling level, is much enhanced by the presence of protected balconies with pierced stone railings arranged symmetrically about a large dome-surmounted balcony in the centre of the north frontage.

The drainage of the compound has been carefully worked out and will shortly be completed, whilst all buildings are surrounded by good *pucka* drains, which with the 3 ft. plinths have ensured good dry ground floors.

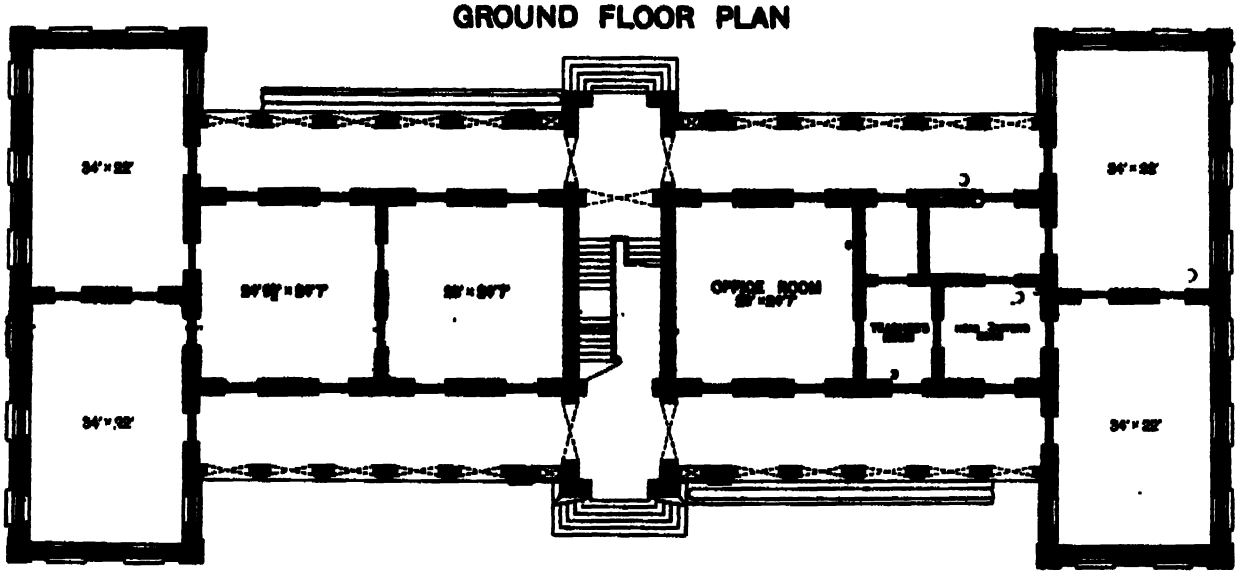
Attached to the school is a single storeyed hostel forming a quadrangle surrounded on three sides by barracks and on the fourth by quarters for two Indian superintendents. There are 26 rooms 19 ft. 10 in. by 13 ft. 10 in. to accommodate four boys in each and two 10 ft. by 7 ft. for two boys each.

The hostel barracks are long uniform buildings, the height from floor to ceiling being 14 ft. Grated windows face outwards and, inside, overlooking the quadrangle, are 6 ft. verandahs.

SCHOOL OF ENGINEERING, DACCA.

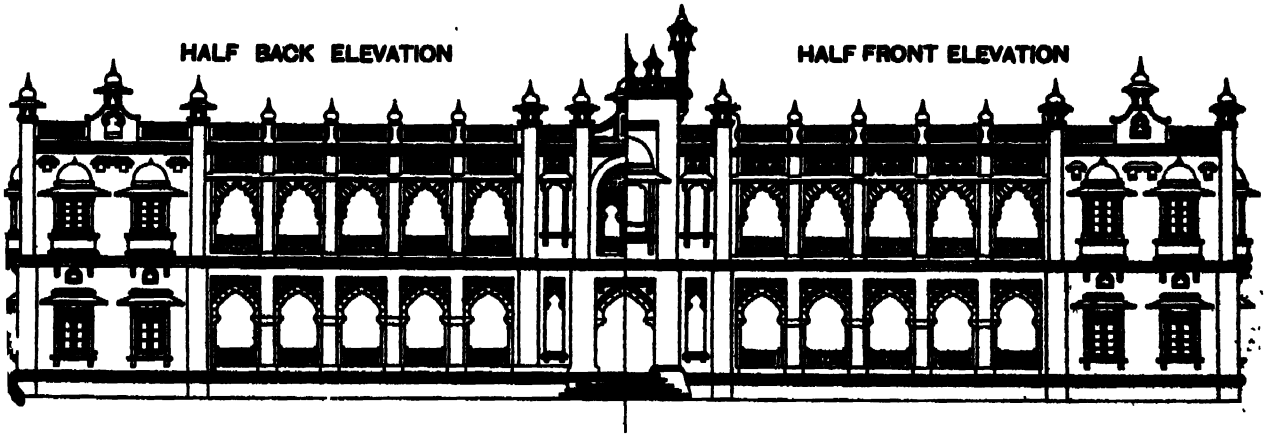
No. 18.

GROUND FLOOR PLAN



HALF BACK ELEVATION

HALF FRONT ELEVATION



The south side of the quadrangle is shut in by two double storeyed superintendents' houses which stretch, with their servants' quarters, from end to end, leaving an opening only in the centre where the main gate is situated. The whole hostel has been carried out in the Saracenic style with sunshades to windows, ornamental parapets and with large domes crowning the superintendents' quarters. The buildings as a whole are not very beautiful, but from the point of view of comfort they are excellent.

The hostel foundations have been constructed strong enough to carry a second storey, should the latter be found necessary.

Machine workshops, water-supply and electric power installation complete the scheme.

CALCUTTA
SUPERINTENDENT GOVERNMENT PRINTING, INDIA
8, HASTINGS STREET